

From: [Stelly David](#)
To: [Stelly David](#)
Cc: [Bill Rooney](#)
Subject: Re: milestones, justification
Date: Tuesday, October 06, 2009 7:01:09 AM
Attachments: [Darpa budget-Stelly oo.xls](#)

here is the overall layout for budget etc

ds

From: [Bill Rooney](#)
To: ["Nilesh Dighe"](#)
Subject: RE: Model for Grain
Date: Saturday, October 10, 2009 11:11:08 PM

Nilesh:

Those look pretty good. The only question that I had involves the standard deviations which look rather high. Am I right, are they high? How does that affect accuracy and repeatability?

Bill

-----Original Message-----

From: Nilesh Dighe [<mailto:nileshdighe@neo.tamu.edu>]
Sent: Tuesday, October 06, 2009 8:45 AM
To: Linda Dykes"lrooney
Cc: Bill Rooney; Rooney, Lloyd W
Subject: Model for Grain

Linda-

I just finished building models for the three grain-quality traits (Tannins, Total Phenols, & Anthocyanins) on the testing set that you had wet chemistry on. The preliminary data looks very promising. The R squares for all the three built models were above 95%. Please see the attached excel file for the detailed stats. The excel files also includes stat for Lab vs Predicted values. I am also attaching graphs for Lab vs Predicted values for the three traits.

Also attached is an excel file that includes codes for the samples used in the test.

Please let me know if you have any questions.

Nilesh

From: [Lloyd Rooney](#)
To: [Robert Harris](#)
Cc: [Peter B. Harris](#); [Bill L. Rooney](#)
Subject: Re: moving ahead
Date: Wednesday, September 23, 2009 1:07:57 PM
Attachments: [IMAGE.bmp](#)

Hello Bob: I am ready as well. I have a meeting at 4:00pm Texas Time. Best Lloy



Dr. Lloyd W. Rooney
Regents Professor and Faculty Fellow
Cereal Quality Laboratory
Texas A&M AgriLife Research
2474 TAMU

College Station, TX 77843-2474 USA
phone 979 845 2910; fax 979 845 0456

<lrooney@tamu.edu> <http://soilcrop.tamu.edu> <http://tamufood.org>

d >>> "Robert Harris" [REDACTED] 9/23/2009 10:58 AM >>>

I am ready to talk to you about working with us whether we have a deal with the Development people or not. I would have liked to do it the right way but they have made it difficult or almost impossible. They are not being realistic. Our old tie with Brandeis University worked out very well for the University and the scientists involved. However, Development only wants to do it the way they have done others which does not make sense for this project. Of course the state cancer funding complicated it as well.

I reported to McCutcheon that MD Anderson filed for 400 plus applications to the state for cancer funding starting last June. The competition for funding is fierce.

We're in the food and supplement business and that is where we are putting our priority. Peter and I am going to Boston to the Natural Food Show Thursday through Saturday. We will support MD Anderson with our products but we want to put our effort where our primary opportunity is - sorghum based foods. We feel that would be good for the University and for you as well. Can we talk this afternoon or next week?

Bob

From: [Lloyd Rooney](#)
To: [Robert Harris](#)
Cc: [Peter B. Harris](#); [Bill L. Rooney](#)
Subject: Re: moving ahead
Date: Wednesday, September 23, 2009 12:17:05 PM
Attachments: [IMAGE.bmp](#)

Hello Bob: I am still interested in working with you folks. We can visit this afternoon to see what is possible etc. Best Lloy



Dr. Lloyd W. Rooney
Regents Professor and Faculty Fellow
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phone 979 845 2910; fax 979 845 0456
<lrooney@tamu.edu> <http://soilcrop.tamu.edu> <http://tamufood.org>
d

>>> "Robert Harris" [REDACTED] 9/23/2009 10:58 AM >>>

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Bob

From: [Robert M. Harris](#)
To: [Lloyd Rooney](#)
Cc: [Bill Rooney](#); [Peter Harris](#)
Subject: Re: moving ahead
Date: Wednesday, September 23, 2009 2:07:26 PM

My thought is:

Have you assist us to develop food formulations such as pasta, bread, cookies, etc. using high tannin sorghum (NK8830) which we have been growing for now.

Also, to evaluate new types of sorghum in terms of antioxidant content to find the best sorghum to have farmers grow for food.

Formulate whole grain cereals, (cold and hot) snacks, pancake mix, cookies, pasta, etc.

Do lab tests as needed.

Advise us in technical areas.

On 9/23/09 2:06 PM, "Lloyd Rooney" <lrooney@tamu.edu> wrote:

Hello Bob: I am ready as well. I have a meeting at 4:00pm Texas Time. Best Lloyd



Dr. Lloyd W. Rooney
Regents Professor and Faculty Fellow
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<http://tamufood.org> <<http://tamufood.org/>>

d >>> "Robert Harris" [REDACTED] 9/23/2009 10:58 AM >>>

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Bob

From: [Bill Rooney](#)
To: ["John Mullet"](#)
Cc: ["Stelly David Stelly"](#)
Subject: RE: Next draft
Date: Wednesday, September 09, 2009 3:33:00 PM
Attachments: [iap_diagrams3.ppt](#)

I'm contributing to the large scale mass e-mailings.....

This figure also includes those actual pictures.....

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: John Mullet [<mailto:jmullet@tamu.edu>]
Sent: Wednesday, September 09, 2009 9:19 AM
To: Bill Rooney
Cc: Bob Avant
Subject: Next draft

Bill,

Could you review my revisions, make any further changes then lets accept this version and send to everyone for a final review.

Thanks,

John

From: [Nilesh Dighe](#)
To: [Bill Rooney](#)
Subject: Re: NIR
Date: Sunday, September 20, 2009 2:12:33 PM

Dr. Rooney,

Yes, According to the manual, the instrument should have backed up every scan that we did till 9/8/2009. In the past, I had specifically raised this concern to Foss representatives and have learned that yes, the instrument backs up all the data as suggested in the manual. The backed up file can be opened using WinISI. I however, could not open that file using WinISI because of some system requirement error which made no sense to me. Tomorrow, I will get hold of FOSS representatives and try to resolve the issue.

BTW: In addition to the instrument's back up procedure, I also kept a back up copy for all the spectra till 06/15/2009. This file should include all of 2007 and 2008 scans for bioenergy project and the 2008/09 scans from the Mullet's group. The samples without an additional back up would include ~200 samples from 2009-Bioenergy project, 100 scans from the 2009-grain NIR project, and whatever Mullet's group scanned after 06/15/2009.

Nilesh

----- Original Message -----

From: "Bill Rooney" <wlr@tamu.edu>
To: "Nilesh Dighe" <nileshdighe@neo.tamu.edu>
Sent: Sunday, September 20, 2009 8:53:36 AM GMT -06:00 US/Canada Central
Subject: RE: NIR

So we have everything up to 9/8?

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Nilesh Dighe [<mailto:nileshdighe@neo.tamu.edu>]
Sent: Sunday, September 20, 2009 8:48 AM
To: sethmurray
Cc: Bill Rooney
Subject: NIR

Hi Seth,

This morning, I noticed that all the spectra we collected over the past one year using both stationary and moving cup is missing from the instrument's database history. Right now, the instrument's history includes only your scans from Friday. Currently, the instrument is not able to scan using both stationary as well as moving cup. This is the first time I encounter this problem and so was trying to find out what might have happened. In that process, I just wanted to check with you if you had any problems while you were working on Friday? Do you remember if you received any error messages?

Do you remember if you changed any instrument settings or by chance deleted any samples?

I am going to get hold of Foss people early tomorrow and see what's happening. The instrument has capability of backing up all the data every 14 days. It shows me that the last time it backed up the data was on 09/08/2009. I will also get help from FOSS in retrieving all the backed up samples.

Regards,
Nilesh

From: [Nilesh Dighe](#)
To: [Bill Rooney](#)
Subject: Re: NIR
Date: Sunday, September 20, 2009 2:51:43 PM
Importance: High

Dr. Rooney-

I just met Seth in our lab and learned that he changed the scan display settings, thus not allowing me to see any of scans before and after 9/18/09 (The day Seth scanned). After changing the settings back to the default, I was able to see every scan we did till date. The instrument is working just fine and we don't have any worries at this point. Hereafter, I will make it a routine to always back up our data at least once a week, in case the instrument fails or any other catastrophic incidences occurs.

Nilesh

----- Original Message -----

From: "Nilesh Dighe" <nileshdighe@neo.tamu.edu>
To: "Bill Rooney" <wlr@tamu.edu>
Sent: Sunday, September 20, 2009 2:12:32 PM GMT -06:00 US/Canada Central
Subject: Re: NIR

Dr. Rooney,

Yes, According to the manual, the instrument should have backed up every scan that we did till 9/8/2009. In the past, I had specifically raised this concern to Foss representatives and have learned that yes, the instrument backs up all the data as suggested in the manual. The backed up file can be opened using WinISI. I however, could not open that file using WinISI because of some system requirement error which made no sense to me. Tomorrow, I will get hold of FOSS representatives and try to resolve the issue.

BTW: In addition to the instrument's back up procedure, I also kept a back up copy for all the spectra till 06/15/2009. This file should include all of 2007 and 2008 scans for bioenergy project and the 2008/09 scans from the Mullet's group. The samples without an additional back up would include ~200 samples from 2009-Bioenergy project, 100 scans from the 2009-grain NIR project, and whatever Mullet's group scanned after 06/15/2009.

Nilesh

----- Original Message -----

From: "Bill Rooney" <wlr@tamu.edu>
To: "Nilesh Dighe" <nileshdighe@neo.tamu.edu>
Sent: Sunday, September 20, 2009 8:53:36 AM GMT -06:00 US/Canada Central
Subject: RE: NIR

So we have everything up to 9/8?

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Niles Dighe [<mailto:nilesdighe@neo.tamu.edu>]

Sent: Sunday, September 20, 2009 8:48 AM

To: sethmurray

Cc: Bill Rooney

Subject: NIR

Hi Seth,

This morning, I noticed that all the spectra we collected over the past one year using both stationary and moving cup is missing from the instrument's database history. Right now, the instrument's history includes only your scans from Friday. Currently, the instrument is not able to scan using both stationary as well as moving cup. This is the first time I encounter this problem and so was trying to find out what might have happened. In that process, I just wanted to check with you if you had any problems while you were working on Friday? Do you remember if you received any error messages? Do you remember if you changed any instrument settings or by chance deleted any samples?

I am going to get hold of Foss people early tomorrow and see what's happening. The instrument has capability of backing up all the data every 14 days. It shows me that the last time it backed up the data was on 09/08/2009. I will also get help from FOSS in retrieving all the backed up samples.

Regards,
Niles

From: [Rene Clara](#)
To: [Bill Rooney](#)
Cc: [John Yohe](#)
Subject: Re: Official delivery of germoplasma INTSORMIL-CENTA
Date: Tuesday, October 13, 2009 5:20:12 PM

Dr. Bill,

I believe that it is up to you to speak with Dr. Yohe to tell him that we want to do an official act of delivery of three nurseries of new varieties "bmr" to the national programs of six countries of Central America, in coordination with SICTA and USAID in February, 2010.

If he is available, then we can decide if you come in December or February, if it is not available we can postpone this activity in accordance with the availability.

Regards,

René Clará V.
INTSORMIL
Host Regional Coordinator

CENTA, Apdo. Postal 885,
San Salvador, El Salvador, C.A.
Tel. (503) 2302 0239 - (503) 7815 2238 cel.
Fax: (503) 2302 0239

E-mail [REDACTED]

De: Bill Rooney <wlr@tamu.edu>
Para: Rene Clara [REDACTED]
CC: John Yohe <jyohe@unlnotes.unl.edu>
Enviado: mar, octubre 13, 2009 6:43:34 AM
Asunto: RE: Official delivery of germoplasma INTSORMIL-CENTA

Rene:

I can participate – John will have to confirm his availability.

Based on my schedule, we also need to discuss my trip to Central America. I would really like to combine trips to save time and money. If I am coming in February for this release, how do you feel about adding project reviews to the trip at that time? That would mean that I don't come in December.

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

From: Rene Clara [REDACTED]
Sent: Friday, October 09, 2009 3:06 PM
To: Bill Rooney
Cc: John Yohe; Joan Frederick
Subject: Official delivery of germoplasma INTSORMIL-CENTA

Dear Dr. Bill,

I am planning the following activity to realize it in some country of this region:

We have finished the phase of improvement of forage sorghum varieties with "bmr" genes and now we are doing to them the first evaluation. For in Febrero/2010, we thought to distribute this germplasm to the national programs of seven countries of Central America (Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize and Panama), to do a tidy delivery and that every program took more responsibility in doing its own evaluations and liberations. We are going to prepare three nurseries (high, medium and dwarf plants) to deliver them to him to every country.

We will do this act of delivery in collaboration of the “ Central American System of Integration of Agricultural Technology ” (SICTA). Those who will do the invitations to representatives of seven countries.

The economic part of this activity, only would consist of paying the tickets of plane and 2 nights of hotel to Dr. John Yohe y Dr. Bill Rooney, those who would do the delivery of this seed.

I need your opinion on this matter.

Regards,

René Clará V.
INTSORMIL
Host Regional Coordinator

CENTA, Apdo. Postal 885,
San Salvador, El Salvador, C.A.
Tel. (503) 2302 0239 - (503) 7815 2238 cel.
Fax: (503) 2302 0239

[REDACTED]

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From: [C. Wayne Smith](#)
To: [Bill L Rooney](#)
Cc: [Kathy Ferguson](#); [Glenda Kurten](#)
Subject: Re: Ostilio Portillo
Date: Monday, September 14, 2009 2:53:00 PM
Attachments: [C. Wayne Smith1.vcf](#)

Bill,
Yes. I admitted him for Spring 2010 today (I think--new computer system).

Wayne

C. Wayne Smith
Professor and Associate Head
Department of Soil and Crop Sciences
2474 TAMU
Texas A&M University
College Station, TX 77843-2474
979.845.3450
cwsmith@tamu.edu

>>> "Bill Rooney" <wlr@tamu.edu> 9/11/2009 5:25 PM >>>
Wayne:

I'm interested in having Ostilio Portillo join my program as a graduate assistant to study for a Ph.D. I know that he has applied; I need to know the status of his application and if I can write him an offer letter.

I have INTSORMIL funding for Central America work and it has been impossible to find a student with suitable background to fill that assistantship. Ostilio is as good as a fit as I could ever find and I'd like to make sure he is back in our program and representing our interests in Central America.

regards,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

From: [Rene Clara](#)
To: [Joan Frederick](#)
Cc: [Bill Rooney](#); ["John Yohe"](#)
Subject: RE: PCCMCA meeting.
Date: Thursday, September 17, 2009 11:29:18 AM
Attachments: [REPORT OF EXPENSES TO TAKE PART IN PCCMCA 2009 MEETING.doc](#)

Dear Joan,

I think to send you the information that you request, in the attached form. Let me know if this one serves to you or you need another form.

The receipts of the expenses of every person will accompany to this information.

Regards,

René Clará V.
INTSORMIL
Host Regional Coordinator
CENTA, Apdo. Postal 885,
San Salvador, El Salvador, C.A.
Tel. (503) 2302 0239 - (503) 7815 2238 cel.
Fax: (503) 2302 0239
E-mail: [REDACTED]

--- El **mar 8-sep-09**, **Joan Frederick** <jfrederi@unlnotes.unl.edu> escribió:

De: Joan Frederick <jfrederi@unlnotes.unl.edu>
Asunto: RE: PCCMCA meeting.
A: "Bill Rooney" <wlr@tamu.edu>
Cc: "'John Yohe'" <jyohe@unlnotes.unl.edu>, "'Rene Clara'"
[REDACTED]

Fecha: martes, 8 septiembre, 2009, 11:35 am

Bill and Rene, **How much money is left??**

Rene - It would be helpful if you could provide me the following information:

1. Amount received:
2. Amount spent for air tickets and who they were for:

I will need the receipts for air tickets,

3. How much did each person receive for meeting cost and other expenses:
4. Balance of funds:

To return the funds CENTA would have to send a check made to
INTSORMIL/University of Nebraska

It might be more trouble to return the funds than to keep the balance at CENTA. One choice might be to use the balance for part of the next award for CENTA.

Dr. Rooney - what do you think of this option??

=====

Joan Frederick
INTSORMIL
University of Nebraska
114 BCH
Lincoln NE 68583-0748
402-472-7058
jfrederick1@unl.edu

▼ "Bill Rooney" ---09/05/2009 10:04:38 PM---I think we send the money back.

From: "Bill Rooney" <wlr@tamu.edu>
To: "Rene Clara" [REDACTED] "Joan Frederick" <jfrederi@unlnotes.unl.edu>
Cc: "John Yohe" <jyohe@unlnotes.unl.edu>
Date: 09/05/2009 10:04 PM
Subject: RE: PCCMCA meeting.

I think we send the money back.

regards,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Rene Clara [REDACTED]
Sent: Saturday, September 05, 2009 3:58 PM
To: Bill Rooney; Joan Frederick
Cc: John Yohe
Subject: PCCMCA meeting.

Dear Dr. Bill and Joan,

The support of the INTSORMIL for the PCCMCA meeting

was for 4 persons and the funds are in CENTA. In the end only Vilma Calderón and Salvador Zeledón goes to PCCMCA. Max resigned and at the last hour already with the bought tickets, they did not give permission to Dr. Mario Parada Jaco without any valid reason. There was already an agreement, INTSORMIL approved and did the transference of the funds to CENTA.

I think that there was informality and better that we return the money not used to the INTSORMIL. If you agree, favor to give me the information to do the mailing of the not used funds.

Regards,

René

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**REPORT OF EXPENSES TO TAKE PART IN PCCMCA 2009 MEETING.
(Campeche, México Sept. 7-11 of 2009) .**

ITEM	EXPENSE	VILMA CALDERON	SALVADOR ZELEDON	MARIO P. JACO	BALANCE	DEFICIT
Received Advance:						
Transport						
Hotel						
Meals						
Registration						
Taxi						
Taxes						
Others:						
TOTAL						

From: [Rene Clara](#)
To: [Bill Rooney](#)
Cc: ["Joan Frederick"; Vilma Ruth Calderon](#)
Subject: Re: PCCMCA meeting
Date: Wednesday, August 19, 2009 3:17:34 PM
Attachments: [Carta de CENTA.jpg](#)

Dear Dr. Bill,

With Vilma we have concluded that there must go to the PCCMCA meeting the same persons that the research manager of the CENTA requests, according to attached letter.

The budget traveling round bus would be the following one:

**PARTICIPANTS OF CENTA TO THE PCCMCA MEETING IN CAMPECHE,
MEXICO, September 7-11, 2009.**

No.	NAME	PAPER	COST (\$)
1	Máximo Hernández	Validation of the photosensitive line of sorghum 99ZAM 676-1 in relief with corn.	1,025.00
2	Salvador Zeledón	Development of varieties and sorghum hybrids.	1,025.00
3	“ “	Incorporation of genes BMR (brown midrib) and B ₁ B ₂ (tannins) to commercial varieties of sorghum.	_____
4	Vilma Ruth Calderón	Evaluation of quality parameters of grain and mill's of sorghum for the making of food and flours.	1,025.00
5	Aldemaro Clará	Improvement of bean to increase iron and zinc in the grain, yield potential and resistance to diseases.	1,025.00
TOTAL			4,100.00

Regards,

René Clará

--- El **mié 19-ago-09**, **Bill Rooney** <wlr@tamu.edu> escribió:

De: Bill Rooney <wlr@tamu.edu>
Asunto: PCCMCA meeting
A: "Rene Clara" [REDACTED]
Cc: "Joan Frederick" <jfrederi@unlnotes.unl.edu>
Fecha: miércoles, 19 agosto, 2009, 11:15 am

Rene:

First, I do have to apologize because I didn't fully read all of the e-mails from the past week. I have been busy with travel and trying to finish harvest. At that time, I did not read every e-mail to the detail that I need to.

I have finished my e-mails and I have found the different e-mails requesting travel from CENTA to PCCMCA. Here is what I have and what I have agreed to do.

The list that I recieved from VILMA is: Cost estimates from Vilma of \$1,000/person

1. Maximo H.
2. Salavador Z.
3. Vilma C.

The list from RENE. Cost estimates from Rene of \$1,900/person

1. Maximo H.
2. Salavador Z.
3. Vilma C.
4. Aldemaro Clara

Rene - I assume you are going as well.

From INTA (via Rene)

1. Rafael Obando

I also have a request from Eliette but I did not respond to that request.

After I have a single list please send it to me. I assumed that we would pay for this from regional funds. As for cost, if people can take the bus, that would make it possible for more people to attend.

regards,

bill

Dr. William L. Rooney

Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

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San Andrés, 12 de agosto de 2009.

Ingeniero René Clará Valencia
 Coordinador Regional
 INTSORMIL,
 Presente.

Estimado Ingeniero Clará:

Como es de su conocimiento, el CENTA ha participado en todos los años en el evento técnico científico internacional del PCCMCA; este año no queremos ser la excepción y le estamos solicitando sus buenos oficios para gestionar el financiamiento por parte de INTSORMIL para que 4 técnicos participen en dicho evento, el cual se realizará del 7 al 11 de septiembre de 2009 en Campeche, México.

No.	NOMBRE	TÍTULO DEL TRABAJO
1	Validación de la línea de sorgo fotosensitiva 99ZAM 676-1 en relevo con maíz, El Salvador-	Max Antonio Hernández
2	Desarrollo de variedades e híbridos de sorgo, El Salvador	HUMBERTO SALVADOR ZELEDON
	Incorporación de genes BMR (vena central café) y B1b1-B2b2, (taninos) a variedades comerciales de sorgo, El Salvador	HUMBERTO SALVADOR ZELEDON
3	Evaluación de parámetros de calidad de grano y molinera de sorgo para la elaboración de alimentos y harinas, El Salvador	Vilma Ruth Calderón
4	Mejoramiento de frijol para incrementar hierro y zinc en grano, potencial de rendimiento y resistencia a enfermedades, El Salvador	Aldemaro Clará

Esperando que el proceso no sufra ningún inconveniente, me es grato saludarle

Atentamente,

Ingeniero José María García
 Gerente de Investigación a.i



From: [Bill Rooney](#)
To: ["John Mullet"; "Stelly David Stelly"](#)
Subject: RE: Possible Figure 3
Date: Wednesday, September 09, 2009 3:28:00 PM
Attachments: [iap_diagrams3.ppt](#)

John and David

I added/edit a few of the words on the diagram. The main difference is the change from "TAMU Sorghum Line as a Seed Parent" to "TAMU "promiscuous" sorghum as a seed parent". The difference is small but important. The first implies that all TAMU sorghum functions as a wide hybrid parent. The second clearly delineates the specific, but unnamed line.

That is all.

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: John Mullet [<mailto:jmullet@tamu.edu>]
Sent: Wednesday, September 09, 2009 2:32 PM
To: Bill McCutchen
Cc: Bill Rooney
Subject: Possible Figure 3

Bill,

David created this new slide that might replace our current Figure 3 to make the process clearer.

John

From: [Bill Rooney](#)
To: ["Deborah Sutherland"](#)
Subject: RE: print job
Date: Tuesday, September 08, 2009 8:55:00 AM
Attachments: [Agro642 - TAES Sorghum Breeding Program.ppt](#)
[Agro642 - TAES Sorghum Breeding Program.pdf](#)
[IMAGE.BMP](#)

If you use the powerpoint, make sure to print handouts (6/page), like the pdf file.

Thanks,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Deborah Sutherland [mailto:DSutherland@ag.tamu.edu]
Sent: Tuesday, September 08, 2009 8:44 AM
To: Bill L Rooney
Subject: print job

Dr. Rooney,

If you will email me the job you sent to Susie, we can print it in color which will make it more legible.

If you can send me the powerpoint I can work with it more, but if you only have the pdf, I will make it work.

Debbie



Debbie Sutherland
Administrative Coordinator
Dept. of Soil & Crop Sciences
TAMU 2474, Rm. 434
College Station, TX 77843-2474

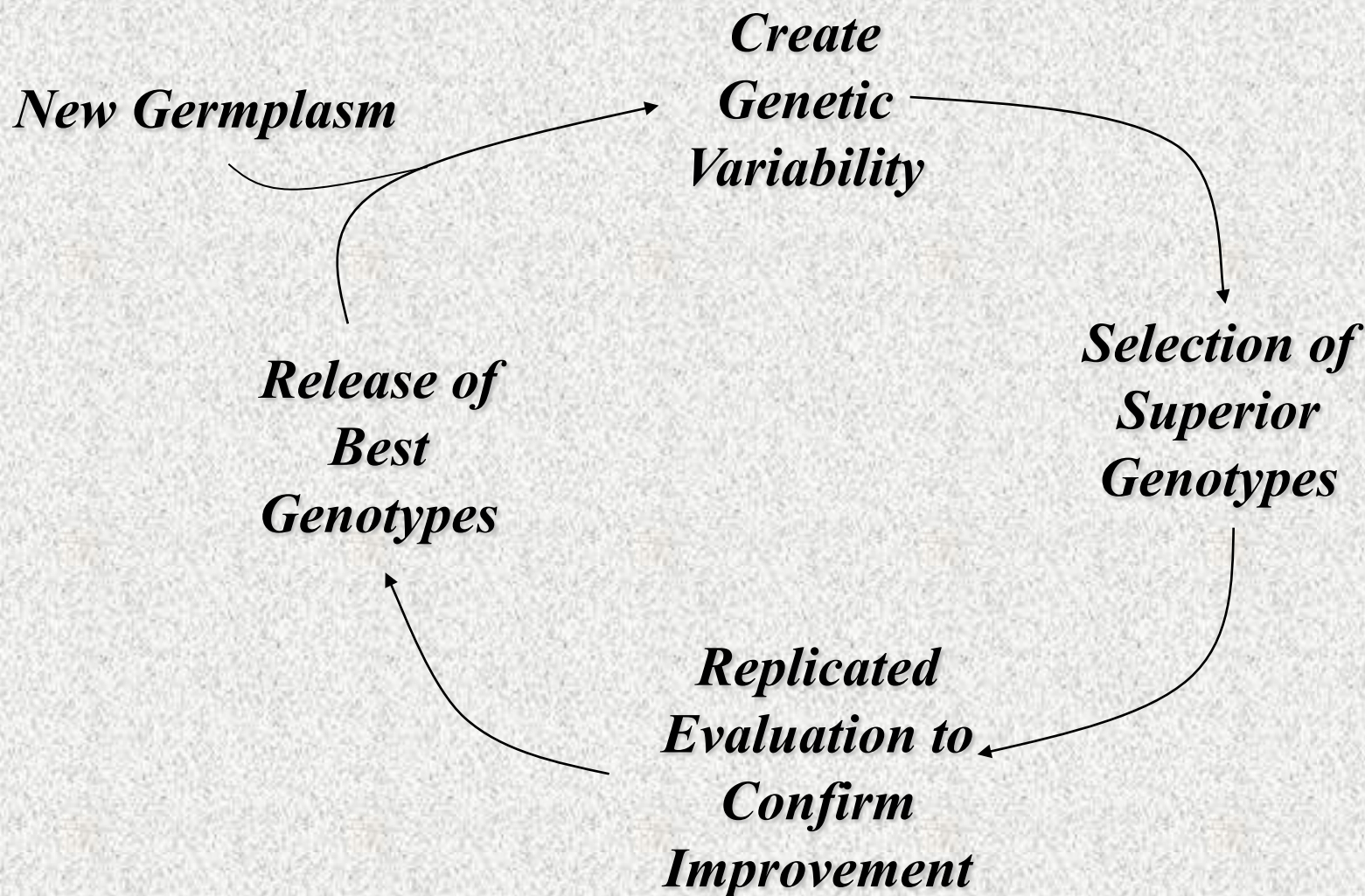
phone: 979.845.4808 fax: 979.845.0456

Texas A&M
Sorghum Breeding Program -
Data Management Procedures

Agro 642



Plant Breeding Basics



Sorghum bicolor

- Cultivar Types
 - Developing Countries: Varieties
 - Developed Countries: Hybrids
- Breeding Methodology
 - Mostly Pedigree followed by Sterilization and Testcrossing
 - Some Population Breeding using Genetic Male Sterility
- Hybridization for Hybrid Seed Production
 - Cytoplasmic Male Sterility

Emphasis - 2009

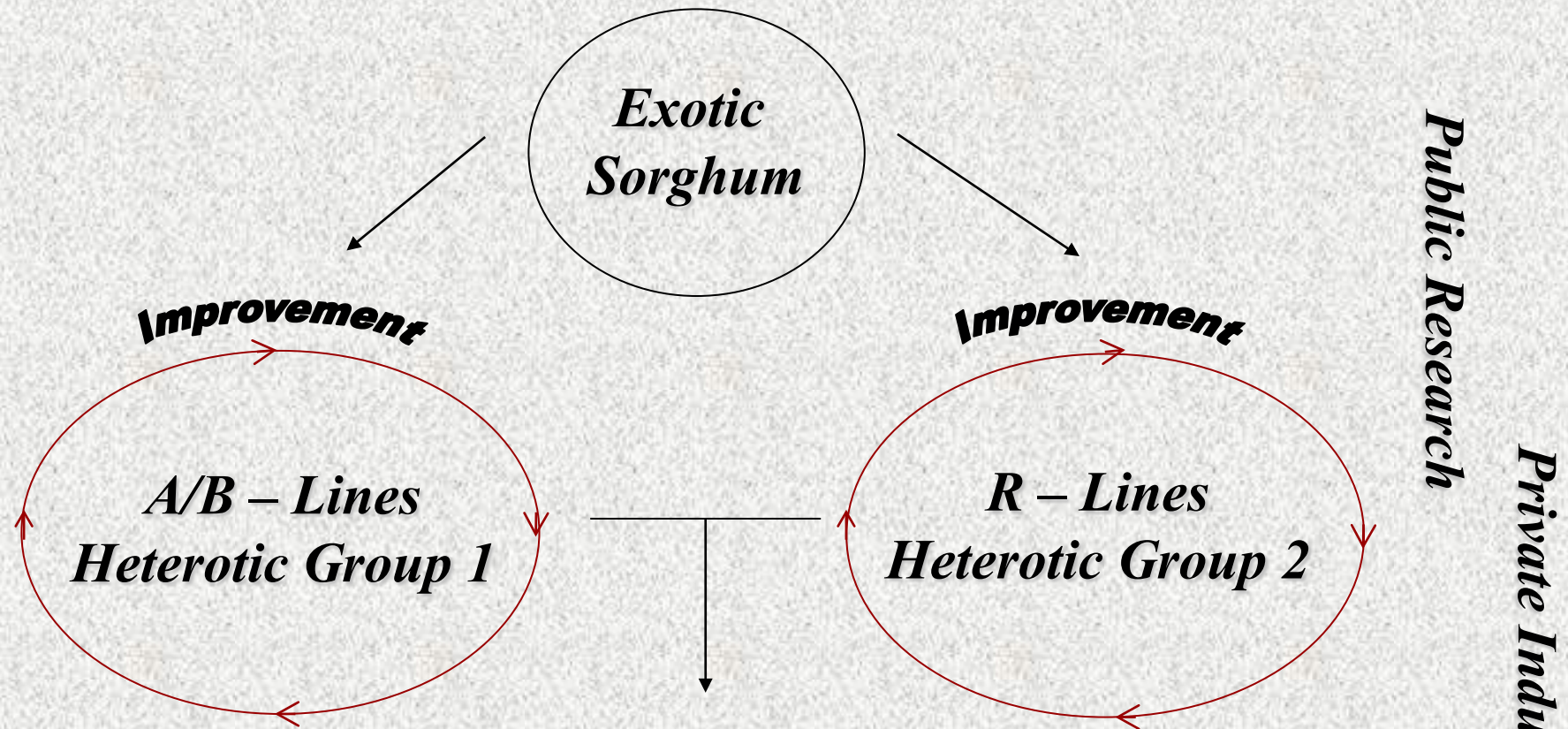
- Bioenergy 50%
 - Biomass
 - Sweet
- Grain 40%
 - Traditional
 - Health Food
- Forage 10%
 - Grazing
 - Silage
- Emphasis Defined by Funding
 - Corporate (70%)
 - Ceres
 - Chevron
 - Public (25%)
 - Federal
 - State
 - Commodity (5%)
 - USCP

TAES Sorghum Breeding Objectives

- Conduct research on the genetic control of agronomically important traits in sorghum
- Train undergraduate and graduate students in plant breeding and genetics
- Release improved germplasm and parental lines to the sorghum breeding industry



TAES Breeding Procedure



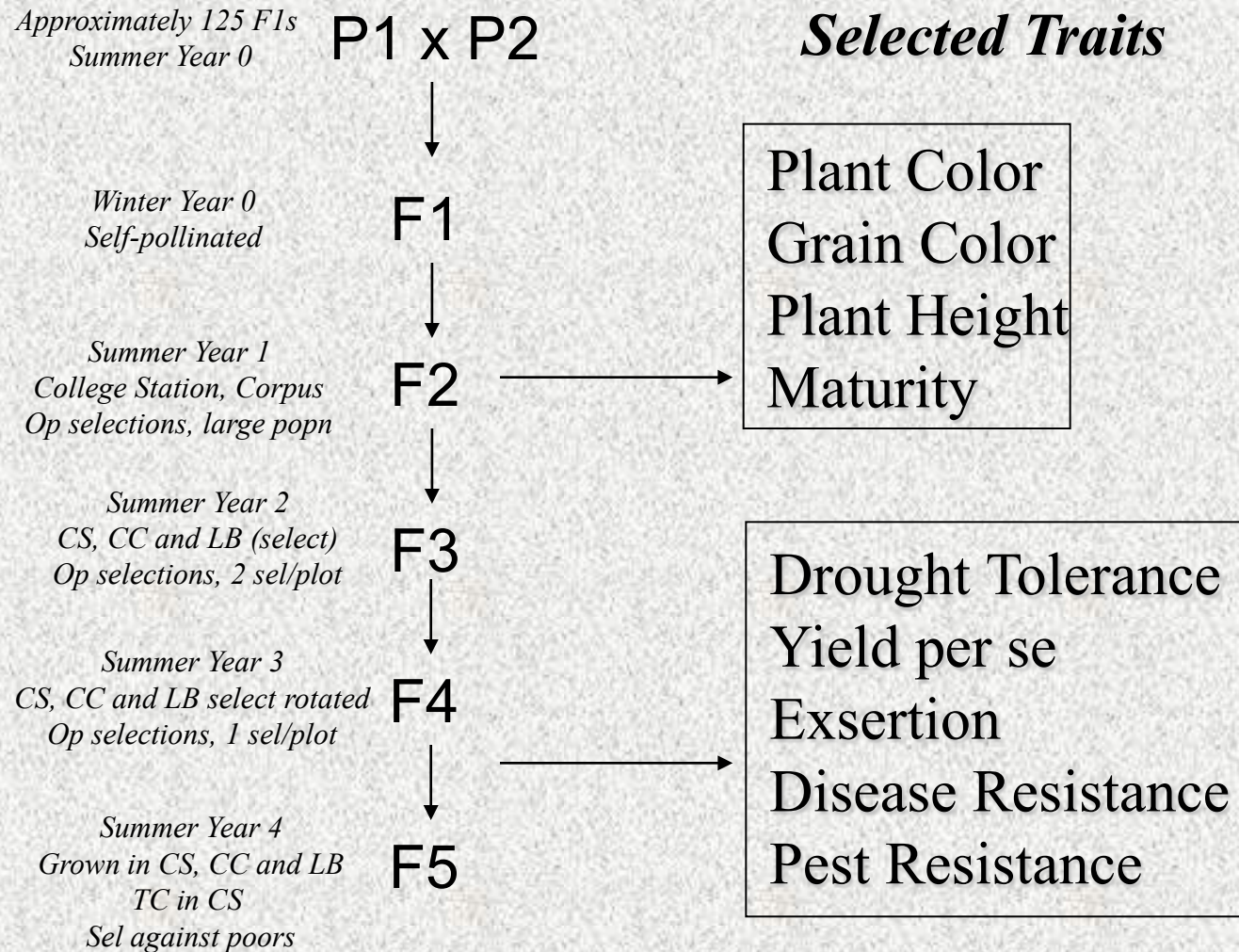
Hybrids capture Heterosis

Good Hybrid has 150 % Mid-Parent Heterosis

Improvement of Inbreds also Enhance Hybrids and Heterosis

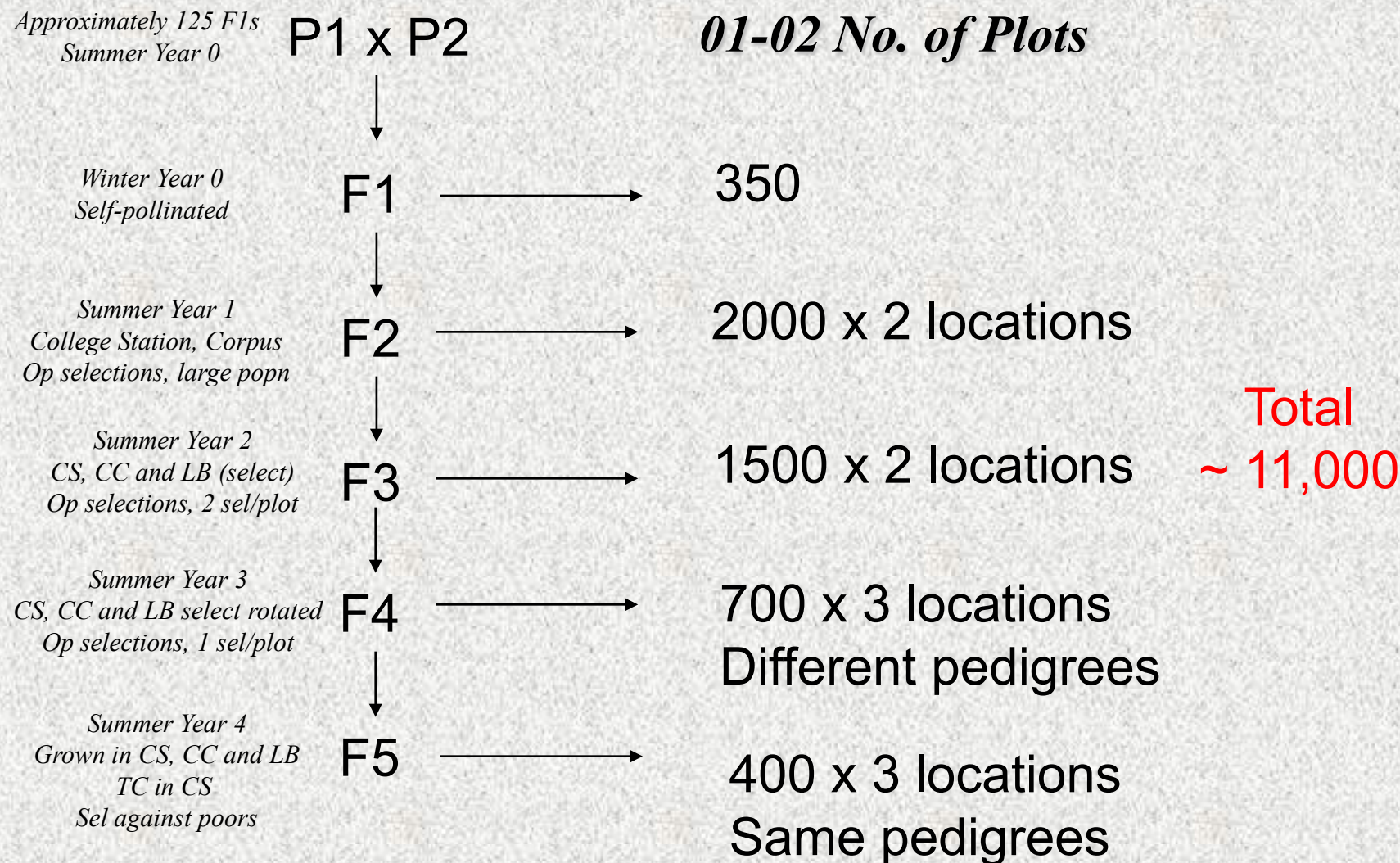
TAES Sorghum Improvement Program

Both B & R Lines (they are kept separate)



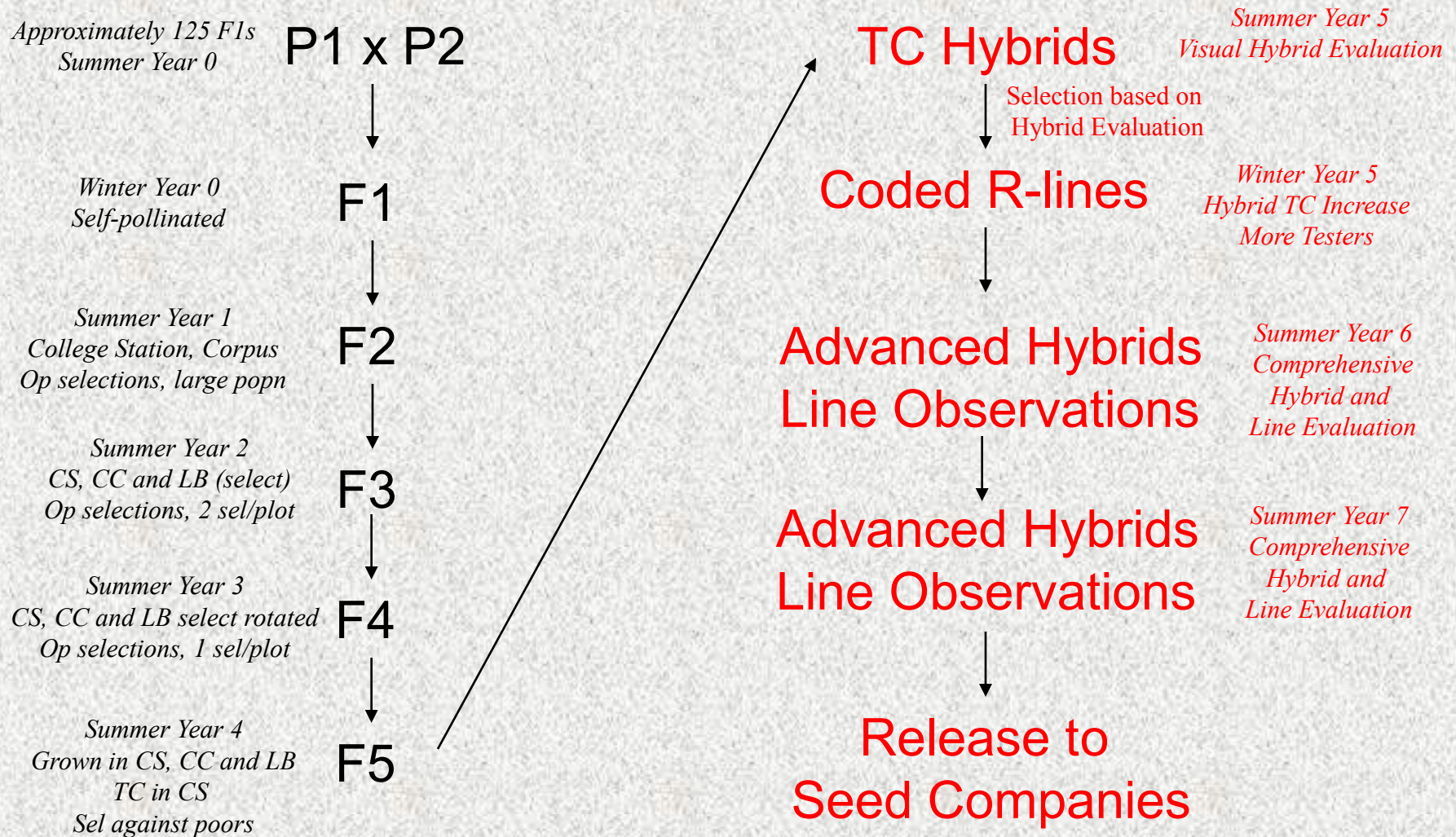
TAES Sorghum Improvement Program

Both B & R Lines Breeding Plots



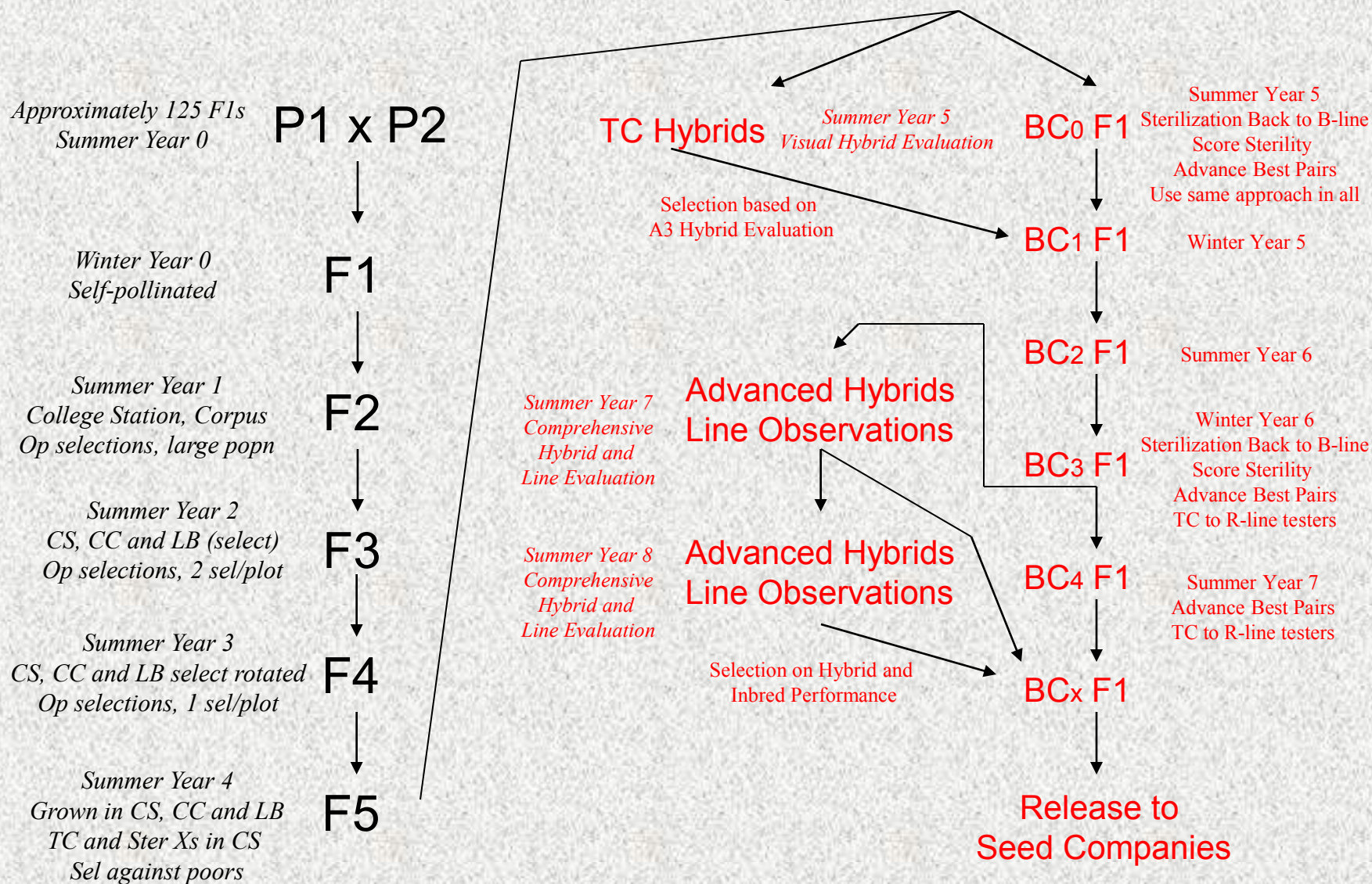
TAES Sorghum Improvement Program

R – Line Breeding Scheme



TAES Sorghum Improvement Program

B – Line Breeding Scheme



TAES Sorghum Improvement Program

R (or B) – Hybrid Evaluation Numbers

400 * 1 reps * 3 locs ←

400 * 1 reps * 5 locs ←

150 * 3 reps * 5 locs ←

Total Plots
5,450

TC Hybrids

*Summer Year 5
Visual Hybrid Evaluation*

Selection based on
Hybrid Evaluation

Coded R-lines

*Winter Year 5
Hybrid TC Increase
More Testers*

**Advanced Hybrids
Line Observations**

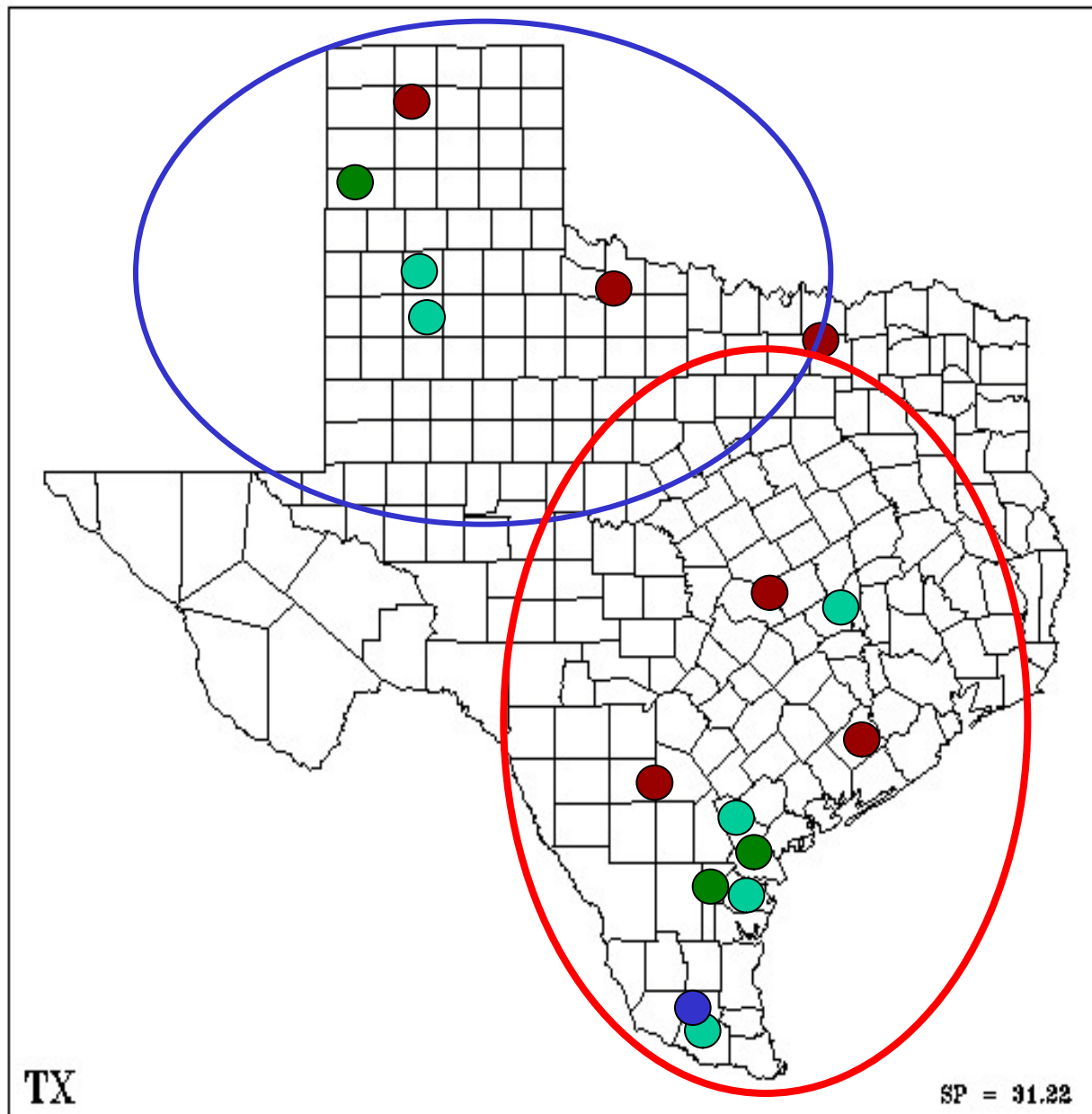
*Summer Year 6
Comprehensive
Hybrid and
Line Evaluation*

**Advanced Hybrids
Line Observations**

*Summer Year 7
Comprehensive
Hybrid and
Line Evaluation*

**Release to
Seed Companies**

Evaluation and Selection Locations in Texas



- *Inbred selection and hybrid evaluation*
- *Hybrid evaluation*
- *Cooperative*
- *hybrid*
- evaluation*
- Winter Nursery*
- Region of Subtropical Adaptation*
- Region of Temperate Adaptation*

Total Numbers - Field

- Breeding Nursery (CC, BE, CS, LB, HW)
 - ~ 11,000 plots (15 acres)
- Advanced Evaluation (all over the place)
 - Line per se (~ 2,000 plots) (3 acres)
 - Hybrids (~ 3,500 plots) (12 acres)
- Research Nursery (WE, CC, BE, CS, LB, HW)
 - ~ 10,000 plots (14 acres)
- Seed Maintenance and Increase (CS, LB)
 - ~ 5,000 plots (8 acres)
- Standard Increases and Border (8 acres)

Total Numbers - Inventory

- Total : 81,468 as of April 1, 2002
 - Hybrids
 - Inbred
 - Research
 - Breeding
- 1992 through 2001 increases
- Must keep accurate weights on standard hybrids and inbred lines as they are used regularly

Data Management - Needs

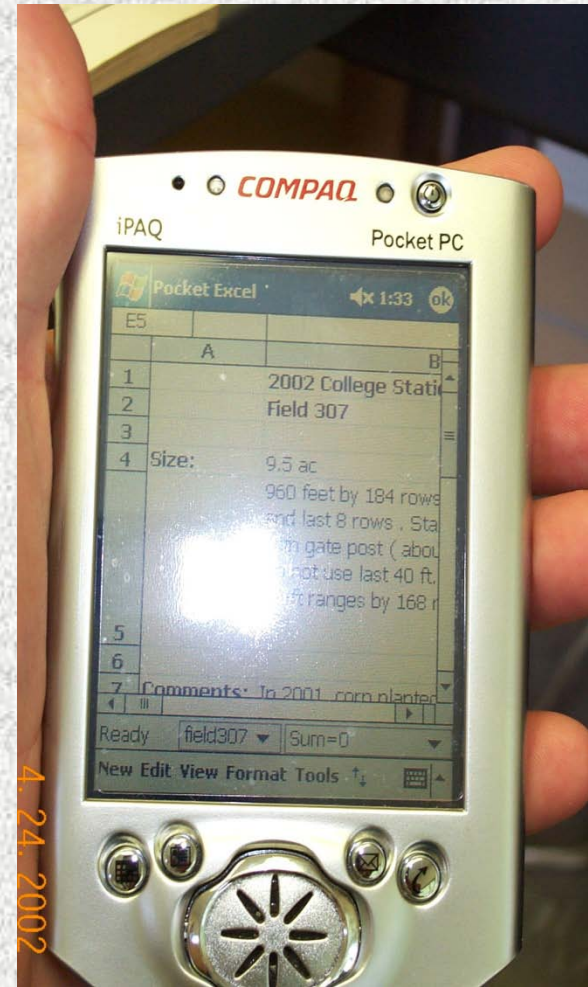
- Pedigree Updates (must update automatically)
- Inventory Maintenance (keep track seed supply)
- Experimental Design and Randomization
- Labels – packaging, inventory, harvest
- FieldBooks – paper and computer
- Statistical Analysis
- Maps

Data Management - Software

- Microsoft Excel
 - Maps
 - Field Books
 - Data Input
 - Pedigree Updating
 - Inventory Maintenance
 - Experimental Design and Randomization
 - Labels
- SAS
 - Statistical Analysis

Data Management - Hardware

- Desktop Computer and Printer
- Laptop Computer
- PDA – Compaq iPAQ 3765



Breeding

***Location
Files
(for each site)***

***Labels for
Planting,
Maps***

***Fieldbook
PDA***

Selections

***Notes for
reference***

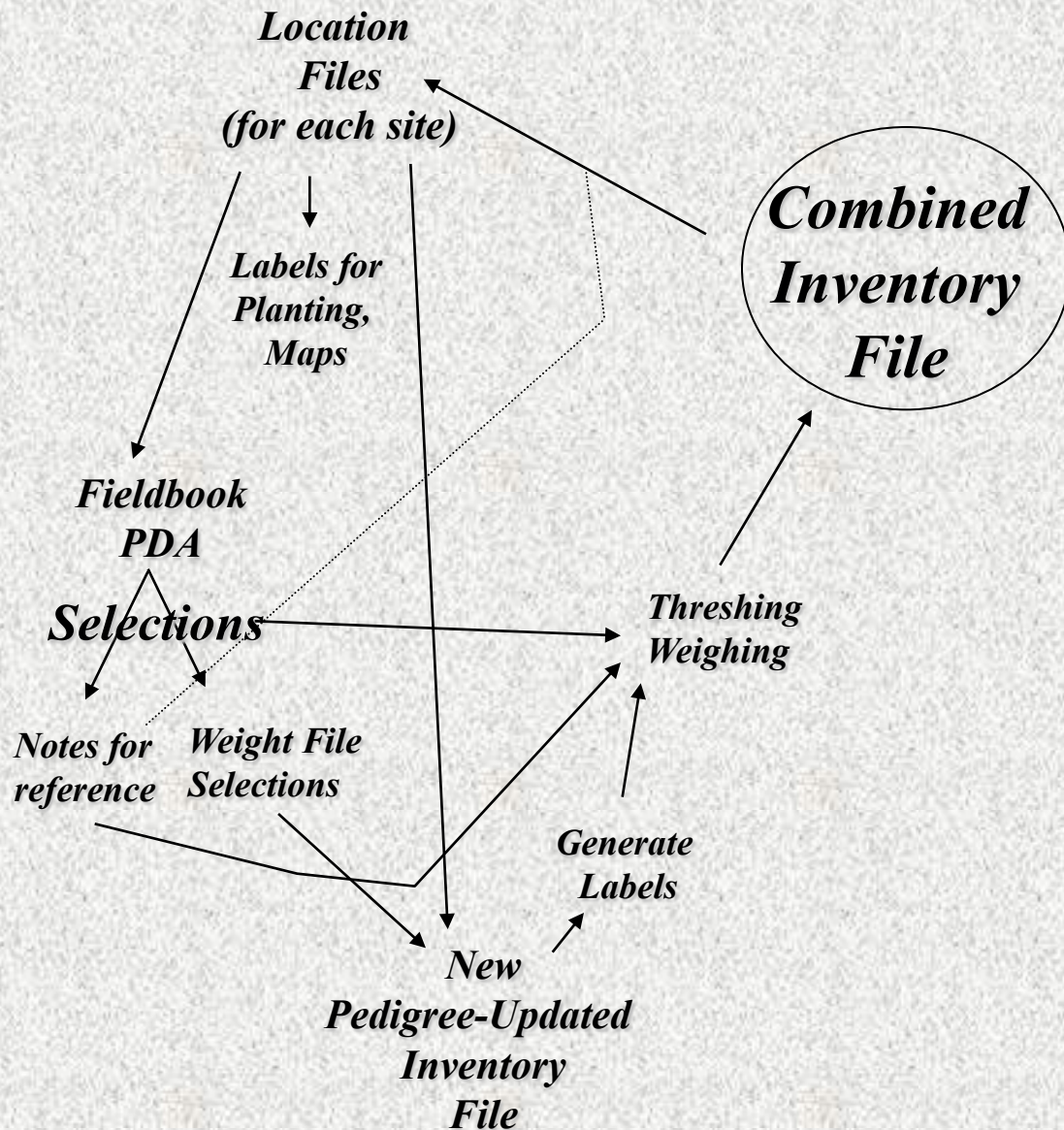
***Weight File
Selections***

***Threshing
Weighing***

***Generate
Labels***

***New
Pedigree-Updated
Inventory
File***

***Combined
Inventory
File***



2001 Corpus Annex F3 FieldBook

PLOT	CODE	SOURCE	PEDIGREE	Sm	Dy	St	Un	Sd	Pl	GI	GM	Ht	Ex	Lod	LDR	PFS	Ag	Yd	ds	Notes	Sel	Inst	2000 Notes	2000 Notes2	RANGE	ROW	
47	1	99CS188	SURENO	0		1	1	W	T		2	57	0	0		7	7	4	5						2	59	
48	1	99CS267	SC326-6	0		1	1	W	P		7	34	0	0		6	8	8	7						2	58	
49	1	99CS268	SC414-12E	0		1	1	W	P		3	41	1	0		2	2	3	3						2	57	
50		COMM	A2-2*RTX2862	2																					2	56	
51	2	00CS8170-1	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2	0		1	2	R	T	lb	2	40	1	0		4	5	4	4		2	2	R/W,T/P,2-3sg	RT		2	55
52	2	00CS8170-2	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2	1	e	1	2	R	P		2	43	1	0		4	6	4	5		2	2	D5A4Y4	RT		2	54
53	2	00CS8170-3	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2																				all sht seln	RT		2	53
54	2	00CS8170-4	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2		e																			RT		2	52
55	2	00CS8021-1	(86EON361*96CD632)-F2	0		1	2	W	T	t	4	44	1	0		5	6	4	5		2	2	WT, mostly tal	WT		2	51
56	2	00CS8021-2	(86EON361*96CD632)-F2																				selections shor	WT		2	50
57	2	00CS8021-3	(86EON361*96CD632)-F2																				lt glu, lg. sd	WT		2	49
58	2	00CS8021-4	(86EON361*96CD632)-F2																					WT		2	48
59	2	00CS8021-5	(86EON361*96CD632)-F2		e																			WT		2	47
60		COMM	A2-2*RTX2862																							2	46
61	2	00CS8021-6	(86EON361*96CD632)-F2																					WT		2	45
62	2	00CS8021-7	(86EON361*96CD632)-F2																					WT		2	44
63	2	00CS8021-8	(86EON361*96CD632)-F2																					WT		2	43
64	2	00CS8021-9	(86EON361*96CD632)-F2																					WT		2	42
65	2	00CS8021-10	(86EON361*96CD632)-F2	1		1	1	W	T	t	4	41	1	0		3	3	3	3	stn	2	2		WT		2	41
66	2	00CS8021-11	(86EON361*96CD632)-F2	0		1	1	W	T	t	4	40	2	0		3	3	4	3	stn	2	2		WT		2	40
67	2	00CS8021-12	(86EON361*96CD632)-F2		e																			WT		2	39
68	2	00CS8021-13	(86EON361*96CD632)-F2																					WT		2	38
69	2	00CS8021-14	(86EON361*96CD632)-F2																					WT		2	37

Use the 01CA FieldBook to Generate the Weight File

PLOT	CODE	SOURCE	PEDIGREE	Sm	Dy	St	Un	Sd	PI	GI	GM	Ht	Ex	Lod	LDR	PFS	Ag	Yd	ds	Notes	Sel	Inst
47	1	99CS188	SURENO	0		1	1	W	T		2	57	0	0		7	7	4	5			
48	1	99CS267	SC326-6	0		1	1	W	P		7	34	0	0		6	8	8	7			
49	1	99CS268	SC414-12E	0		1	1	W	P		3	41	1	0		2	2	3	3			
50		COMM	A2-2*RTX2862	2																		
51	2	00CS8170-1	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2	0		1	2	R	T	lb	2	40	1	0		4	5	4	4		2	2
52	2	00CS8170-2	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2	1	e	1	2	R	P		2	43	1	0		4	6	4	5		2	2
53	2	00CS8170-3	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2																			
54	2	00CS8170-4	((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2		e																	
55	2	00CS8021-1	(86EON361*96CD632)-F2	0		1	2	W	T	t	4	44	1	0		5	6	4	5		2	2
56	2	00CS8021-2	(86EON361*96CD632)-F2																			

FEMPLLOT	FSELNUM	MALEPLOT	MSELNUM	YEARLOC	CODE	WEIGHT
51	1	0	0	01CA	2	1
51	2	0	0	01CA	2	1
52	1	0	0	01CA	2	1
52	2	0	0	01CA	2	1
55	1	0	0	01CA	2	1
55	2	0	0	01CA	2	1

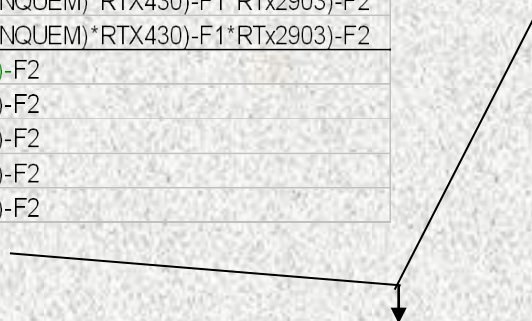
Use the LOC01CA and WHT01CA Files to Generate INV01CA in Agrobase

LOC01CA

PLOT	CODE	SOURCE	PEDIGREE
47	1	99CS188	SURENO
48	1	99CS267	SC326-6
49	1	99CS268	SC414-12E
50		COMM	A2-2*RTX2862
51	2	00CS8170-1	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2
52	2	00CS8170-2	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2
53	2	00CS8170-3	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2
54	2	00CS8170-4	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-F2
55	2	00CS8021-1	(86EON361*96CD632)-F2
56	2	00CS8021-2	(86EON361*96CD632)-F2
57	2	00CS8021-3	(86EON361*96CD632)-F2
58	2	00CS8021-4	(86EON361*96CD632)-F2
59	2	00CS8021-5	(86EON361*96CD632)-F2

WHT01CA

FEMPLLOT	FSELNUM	MALEPLOT	MSELNUM	YEARLOC	CODE	WEIGHT
51	1	0	0	01CA	2	1
51	2	0	0	01CA	2	1
52	1	0	0	01CA	2	1
52	2	0	0	01CA	2	1
55	1	0	0	01CA	2	1
55	2	0	0	01CA	2	1



NUMBER	CODE	SOURCE	WEIGHT	PEDIGREE
77648	2 01CA51-1		43	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-CS1
77649	2 01CA51-2		22	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-CS1
77650	2 01CA52-1		34	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-CS2
77651	2 01CA52-2		27	(((ATX623/3/*SPROPINQUEM)*RTX430)-F1*RTx2903)-CS2
77652	2 01CA55-1		47	(86EON361*96CD632)-CS1
77653	2 01CA55-2		24	(86EON361*96CD632)-CS1

INV01CA

Code Designations

Code	Type	Source	Weight	Pedigree
0	self-pollinated selection	01WF3024-7	15	(BTX635*SURENO)-CS15-CS1
1	self-pollinated bulk	01CS214	2638	B.TX2752
2	open-pollinated selection	01CS9383-1	25	(RTx436*R9848)-F2
3	open-pollinated bulk	01CS20077-BK	91	95BRON155
4	bulk cross	01CS1428*1427	1227	A9108*RTX2783
5	paired male in sterilization	01WF1011-2	84	B006
6	paired female in sterilization	01WF1012*1011-2	100	(BC1)A.B006 (C.S.=A.TX623)
7	cross - hand emas. or poured	01WF2002*2001-F1	3	60M*100M
8	cross - genetic male sterile	01WF4091*3280-3	8	RTx2883ms3(BC1)*(RTX2883ms3*SC574)-F1

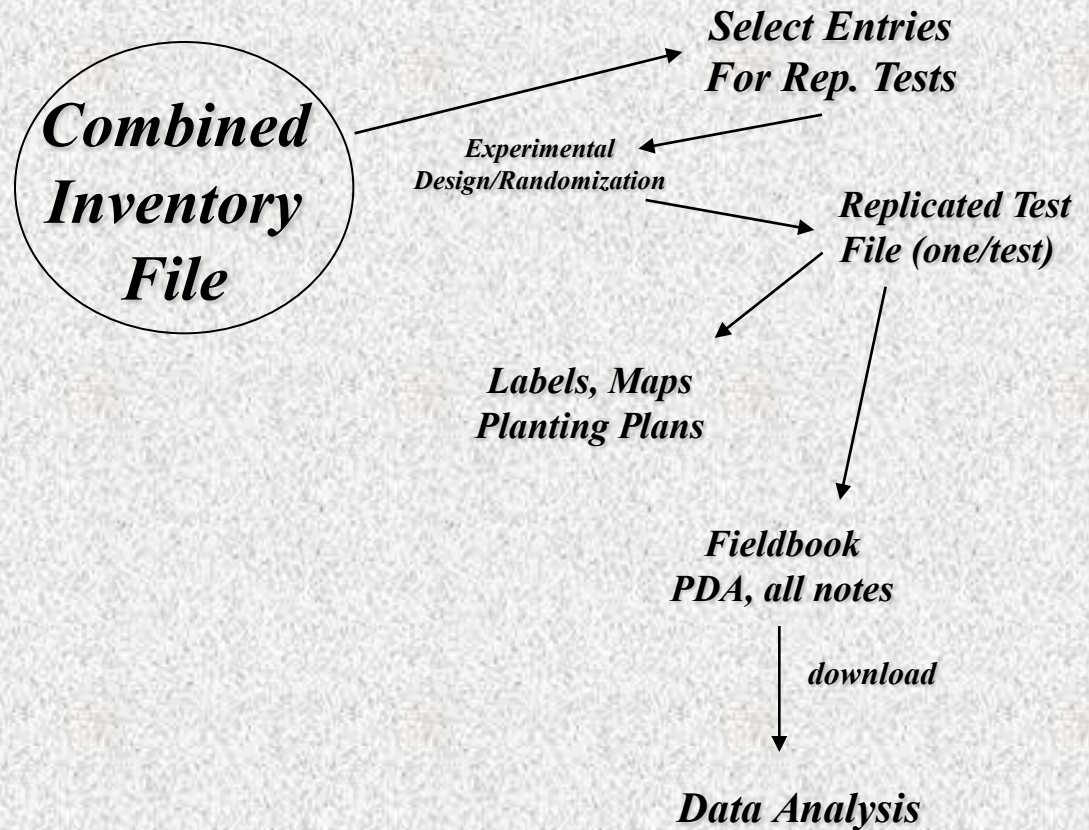
History of Experimental Line (Example: R.01141)

Number	Code	Source	Weight	Pedigree	Generation	Notes
1	7	96C102*147-F1	3	88B928*RTx436	F1	grown in 97PR
245	1	97CS10016	694	(88B928*RTx436)-F1	F2	grown in 1998 CA
deleted	2	98CA196-1	0	(88B928*RTx436)-F2	F3	grown in 1999 CA
26944	2	99CA1043-2	65	(88B928*RTx436)-CA1	F4	grown in 2000 CS
47542	2	00CS1783-1	93	(88B928*RTx436)-CA1-CA2	F5	grown in 2001 CS
64710	1	01CS2687	82	(88B928*RTx436)-CA1-CA2-CS1	F6	grown in BKBR
64711	4	01CS2688*2687	70	ATXARG-1*R01141	Testcross	grown in PRMH



Breeding

Replicated Test



2001 IFST Hybrid Trial – College Station

PLOT	BLOC	ENTRY	CODE	SOURCE	PEDIGREE	NOTES	St	Un	Sd	Pl	Gl	GM	gql	Dy	Ht	Ex	Lod	LR	LP	AG	Yd	ds	TW	PM	YIELD	Notes
101	1	1	4	BOTT92	ATX378*RTX430	RP	1	1	R	P		2		76	66	4	0	4		4	4	4	58.1	13.8	8104	
102	1	2	4	99CS1166*1165	ATX2752*RTX430	RP	1	1	R	P		2		77	55	4	0	4		4	5	4	59.9	13.9	7587	
103	1	3	4	00CS7102*7101	ATX631*RTX436	WT	1	1	W	T		2	x	81	58	6	0	3		3	3	3	58.8	14.0	7071	
104	1	4	4	99CS2066*2065	ATX631*RTX437	WT	1	1	W	T		2		80	64	6	0	5		2	2	3	56.9	13.9	7913	
105	1	5	4	99CS1368*1367	ATX631*RTX2903	RT	1	1	R	T		1	x	83	57	6	0	6		2	4	3	57.0	14.1	6963	
106	1	6	4	00CS7206*7205	ATX635*RTX436	WT	1	1	W	T		1	x	78	67	8	0	4		5	4	4	58.4	14.8	7939	
107	1	7	4	99CS2030*2029	ATX635*RTX437	WT	1	1	W	T		2	x	81	69	7	0	3		4	3	3	56.3	14.6	7312	
108	1	8	4	00CS7010*7009	ATX635*RTX2903	RT	1	1	R	T		1	x	83	72	10	0	3		6	4	4	55.9	14.6	6461	tall
109	1	9	4	99CS1176*1175	ATXARG-1*RTX436	WT	1	1	W	T		2		76	56	6	0	5		2	3	3	56.2	13.8	6738	
110	1	10	4	99CS2046*2045	ATXARG-1*RTX437	WT	1	1	W	T		3		76	68	5	0	4		5	4	4	56.9	13.2	6838	
111	1	11	4	00CS6788*6787	A9009*RTX436	WT	1	1	W	T		2		82	63	9	0	4		3	2	3	57.1	13.8	6306	
112	1	12	4	00CS6798*6797	A9009*RTX437	WT	1	1	W	T		3		80	68	7	0	2		3	2	3	56.7	13.8	7898	
201	2	14	4	00CS6850*6849	A9011*RTX437	RT	1	1	R	T	b	2		78	68	8	0	3		3	4	4	55.9	14.0	7655	
202	2	33	4	00LxbIATX635*329	ATX635*86EON361	WT	1	1	W	T	st	2	y	81	75	5	0	2		4	3	3	58.1	13.9	7161	gd but tall
203	2	7	4	99CS2030*2029	ATX635*RTX437	WT	1	1	W	T	sn	2	y	80	71	6	0	3		4	2	3	56.1	16.0	7664	gd but tall
204	2	26	4	00CS6536*6535	ATX635*R9120	RT	1	1	R	T	st	1	y?	81	71	7	0	3		4	3	3	57.7	14.4	8562	gd but tall
205	2	36	4	00LxbIAHF14*357-	AHF14*GCPobs		1	1	R	T	sn	1		78	53	3	0	4		2	4	3	57.9	14.0	7789	
206	2	2	4	99CS1166*1165	ATX2752*RTX430	RP	1	1	R	P	pf	2		77	60	4	0	5		2	4	3	57.7	14.0	7717	
207	2	24	4	97CS1217*1218	ATXARG-1*R9113	RT	1	2	R	T	sn	1		83	60	5	0	2		4	4	4	56.2	14.0	6468	ht var.
208	2	6	4	00CS7206*7205	ATX635*RTX436	WT	1	1	W	T	st	1	yy	78	68	9	0	2		4	3	3	57.8	15.5	8109	gd but tall
209	2	22	4	99CS2322*2319	ATX635*R8901	WT	1	1	W	T	t	1	yy	83	70	8	0	3		4	4	4	56.1	16.5	7665	
210	2	25	4	00CS6554*6553	ATX631*R9120	RT	1	1	R	T	t	1		82	67	6	0	3		3	3	3	57.0	14.0	8387	
211	2	13	4	00CS6844*6843	A9011*RTX2903	RT	1	1	R	T	lb	1		76	64	8	0	3		2	5	3	56.2	13.5	7714	
212	2	27	4	00CS6706*6705	ATX631*R9317	WT	2	1	W	T	t	2	y	81	61	2	0	3		3	4	3	56.4	14.3	7976	

Once data is downloaded and checked, run standard programs SAS or Agrobases for Hybrid Performance (SCA), Male GCA, Female GCA.....

Entry	Hybrid	Seed Color	Plant Color	Glume Color	Maturity Days	Plant Height	Exser tion	Grain Mold	Lodg ing	Des. Rating	Test Weight	Moist ure	Grain Yield	Grain Yield	Yield to Height	Yield to Maturity
						inches	inches				lbs/bu	%	lbs/acre	bu/acre	lbs/inch	lbs/day
31	ATX631*R9607	W	T	b	79	61	4	2.5	0	3.0	57.7	14.2	9.094	158	150	116
26	ATX635*R9120	R	T	st	81	72	7	1.0	0	4.0	56.8	14.8	8.711	153	121	108
21	ATX631*R8901	W	T	t	78	62	6	2.0	0	2.5	57.1	13.9	8.677	152	141	111
29	ATX631*R9603	W	T	t	80	61	4	1.5	0	2.5	57.0	14.1	8.519	150	141	107
4	ATX631*RTX437	W	T	b	78	66	7	2.0	0	3.0	56.9	14.0	8.451	149	128	108
1	ATX378*RTX430	R	P	p	75	65	4	2.5	0	3.5	57.3	13.7	8.438	147	130	113
18	A9202*RTX437	R	T	t	77	63	4	1.5	0	2.0	57.9	14.1	8.409	145	135	109
12	A9009*RTX437	W	T	b	81	66	6	2.5	0	3.5	57.1	13.9	8.169	143	124	101
6	ATX635*RTX436	W	T	st	78	68	9	1.0	0	3.5	58.1	15.2	8.024	138	119	103
30	ATXARG-1*R9603	W	T	sn	79	55	6	2.5	0	3.5	57.1	13.7	7.974	140	145	102
25	ATX631*R9120	R	T	t	81	68	6	1.5	0	2.5	57.0	14.0	7.942	139	118	98
36	AHF14*GCPobs	R	T	sn	78	58	3	1.0	0	2.5	58.4	14.2	7.890	135	136	102
23	ATX631*R9113	R	T	b	81	69	4	1.0	0	3.5	57.1	15.4	7.870	138	115	97
32	ATX635*R9607	W	T	sn	78	70	7	2.0	0	4.0	56.0	14.2	7.825	140	113	100
20	A9306*RTX436	W	T	st	75	56	6	2.0	0	2.5	56.6	13.4	7.723	136	138	104
28	ATXARG-1*R9317	W	T	sn	77	61	5	2.0	0	3.5	56.6	13.9	7.675	136	127	100
16	A9107*RTX436	W	T	sn	78	60	6	2.0	0	3.0	57.3	13.6	7.665	134	128	99
2	ATX2752*RTX430	R	P	pf	77	58	4	2.0	0	3.5	58.8	14.0	7.652	130	133	99
22	ATX635*R8901	W	T	t	82	71	8	1.0	0	4.5	56.8	15.5	7.638	134	108	93
10	ATXARG-1*RTX437	W	T	sn/t	76	68	5	3.0	0	4.0	56.5	13.2	7.599	135	113	101
7	ATX635*RTX437	W	T	sn	81	70	7	2.0	0	3.0	56.2	15.3	7.488	133	107	93
27	ATX631*R9317	W	T	t	80	62	4	2.0	0	2.5	56.7	14.2	7.486	132	122	94
14	A9011*RTX437	R	T	b	77	67	8	1.5	0	4.0	56.7	14.4	7.482	132	112	97
35	AHF14*91BE7414	W	T	t	79	59	6	1.5	0	2.5	58.0	14.3	7.382	127	125	94
9	ATXARG-1*RTX436	W	T	snf	78	57	6	2.0	0	3.5	56.8	13.9	7.357	130	130	94
19	A9306*RTX2903	R	T	t	78	54	4	2.0	0	3.5	56.2	13.9	7.316	130	135	94
37	AHF14*RTX436	W	T	snf	76	54	6	2.0	0	3.5	57.4	14.2	7.286	127	135	96
3	ATX631*RTX436	W	T	lb	81	60	6	2.0	0	3.5	58.0	14.3	7.227	125	121	89
13	A9011*RTX2903	R	T	lb	76	64	9	1.0	0	4.0	56.7	13.6	7.171	126	113	95
5	ATX631*RTX2903	R	T	snf	84	60	5	1.5	0	4.0	57.4	14.4	7.154	125	119	86
24	ATXARG-1*R9113	R	T	sn	82	60	5	1.0	0	5.0	56.0	14.1	7.045	126	118	86
8	ATX635*RTX2903	R	T	t	83	74	8	1.0	0	4.5	56.0	15.6	6.959	124	95	84
15	A9107*RTX2903	R	T	sn	81	62	6	2.0	0	4.5	57.3	14.1	6.921	121	112	86
11	A9009*RTX436	W	T	b	82	61	8	2.0	0	3.0	57.3	13.9	6.849	120	113	84
17	A9202*RTX2903	R	T	t	81	59	6	1.0	0	4.5	56.5	14.3	6.809	121	115	85
33	ATX635*86EON361	W	T	st	81	73	6	2.0	0	4.0	58.0	14.4	6.804	117	94	84
34	AV26*86EON361	W	T	st	82	57	6	2.0	0	4.0	58.0	14.8	6.399	110	112	79
39	A81059*6OBS172	R	T	sn/r	83	57	2	1.0	0	5.5	57.5	14.9	5.762	100	102	69
38	A81059*6OBS143	R	T	b	86	58	2	1.0	0	5.0	56.7	15.1	5.628	99	97	65
40	A81059*98LI161-LG35	R	T	b	82	58	3	1.0	0	4.5	56.9	14.7	5.437	96	95	66
	GRAND MEAN				79	62	5	1.7	0	3.6	57.1	14.3	7.497	131	120	94
	CHECK MEAN				-9	-9	-9	-9.0	0	-9.0	-9.0	-9.0	-9			
	CV				1	4	21	21.0	0	21.9	1.4	3.9	7			
	LSD				2	4	2	0.6	0	1.3	1.3	0.9	838			
	MSE				1	5	1	0.1	0	0.6	0.6	0.3	244.413			
	SED				1	2	1	0.4	0	0.8	0.8	0.6	498			
	ALPHA				0	0	0	0.1	0	0.1	0.1	0.1	0			
	REP-MS				2	2	0	0.1	0	0.0	1.6	0.3	2,088.842			
	REPS				2	2	2	2.0	0	2.0	2.0	2.0	2			

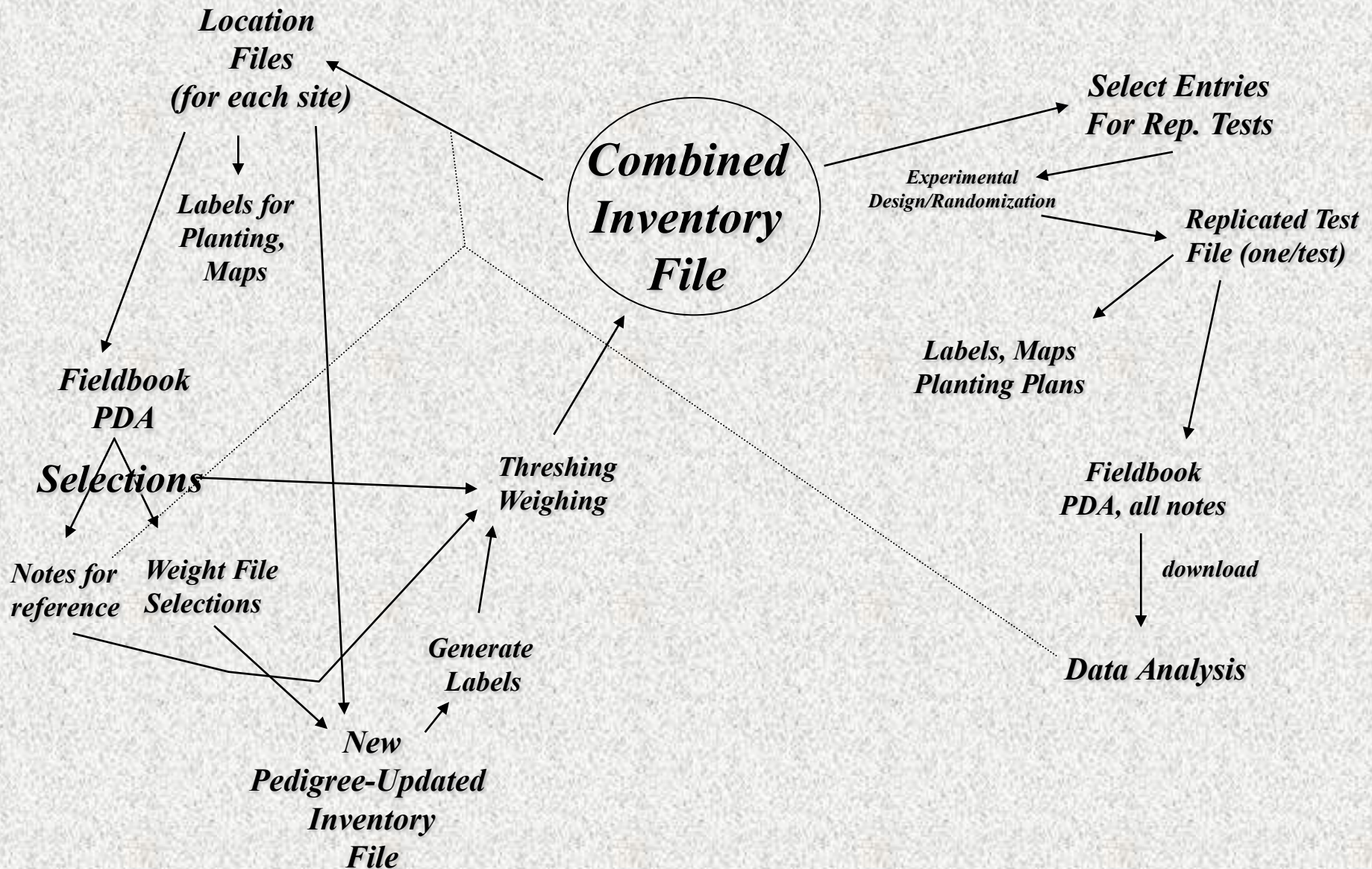
SCA or Hybrid Performance Results For 2001 IFST in College Station

Male GCA Performance Results for 2001 IFST in College Station

Mentry	MALE	Seed Color	Plant Color	Glume Color	Maturity Days	Plant Height	Exser tion	Grain Mold	Lodg ing	Des. Rating	Test Weight	Moist ure	Grain Yield	Grain Yield	Yield to Height	Yield to Maturity
						inches					lbs/bu	%	lbs/acre	bu/acre	lbs/inch	lbs/day
12	R9607	W	T	b	78	65	5	2.3	0	3.5	56.8	14.2	8,459	149	130	108
9	R9120	R	T	t	81	70	6	1.3	0	3.3	56.9	14.4	8,327	146	119	103
11	R9603	W	T	t	79	58	5	2.0	0	3.0	57.0	13.9	8,246	145	143	104
7	R8901	W	T	t	80	66	7	1.5	0	3.5	57.0	14.7	8,157	143	124	102
14	RTX430	R	P	pf	76	61	4	2.3	0	3.5	58.1	13.8	8,045	139	131	106
16	RTX437	W	T	b	78	67	6	2.1	0	3.3	56.8	14.1	7,933	140	119	102
6	GCPobs	R	T		78	58	3	1.0	0	2.5	58.3	14.2	7,890	135	136	102
10	R9317	W	T	t	78	61	4	2.0	0	3.0	56.6	14.0	7,580	134	124	97
8	R9113	R	T	b	82	64	4	1.0	0	4.3	56.6	14.7	7,457	132	117	92
15	RTX436	W	T	t	78	59	7	1.9	0	3.2	57.3	14.1	7,447	130	126	95
4	91BE7414	W	T	t	79	59	6	1.5	0	2.5	57.9	14.3	7,381	127	125	94
13	RTX2903	R	T	t	80	62	6	1.4	0	4.2	56.7	14.3	7,055	125	114	88
3	86EON361	W	T	t	81	65	6	2.0	0	4.0	58.0	14.6	6,601	114	102	81
2	6OBS172	R	T		83	57	2	1.0	0	5.5	57.5	14.8	5,761	100	102	69
1	6OBS143	R	T		86	58	2	1.0	0	5.0	56.6	15.0	5,628	99	97	65
5	98LI161-LG35	R	T		82	58	3	1.0	0	4.5	56.9	14.6	5,436	96	95	66
	GRAND MEAN				80	62	5	1.6	0	3.7	57.2	14.4	7,338	128	119	92
	CV				3	8	33	31.4	0	23.0	1.4	4.9	7			
	LSD				4	8	3	0.8	0	1.4	1.4	1.2	929			
	MSE				5	24	2	0.2	0	0.7	0.7	0.5	299,763			
	SED				2	5	2	0.5	0	0.9	0.8	0.7	556			
	ALPHA				0	0	0	0.1	0	0.1	0.1	0.1	0			
	REP-MS				2	2	0	0.1	0	0.0	1.6	0.3	2,088,839			
	REPS				2	2	2	1.9	0	1.9	1.9	1.9	2			

Breeding

Replicated Test

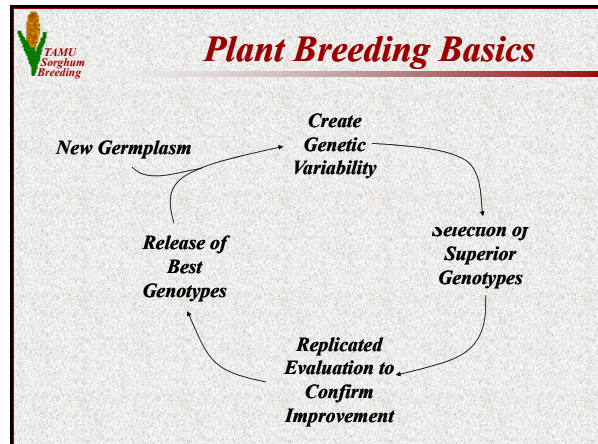


*Plant Breeding is a numbers game...
the more you look at, the better your
chance of finding something good.*

*So make sure that your
data management system
allows you to evaluate to
your full potential*

Texas A&M Sorghum Breeding Program - Data Management Procedures

Agro 642



Sorghum bicolor

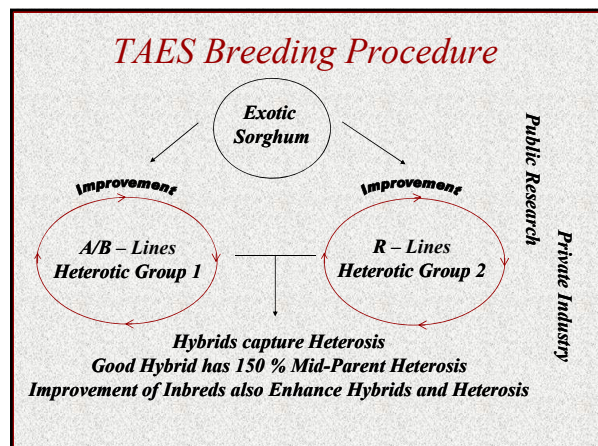
- Cultivar Types
 - Developing Countries: Varieties
 - Developed Countries: Hybrids
- Breeding Methodology
 - Mostly Pedigree followed by Sterilization and Testcrossing
 - Some Population Breeding using Genetic Male Sterility
- Hybridization for Hybrid Seed Production
 - Cytoplasmic Male Sterility

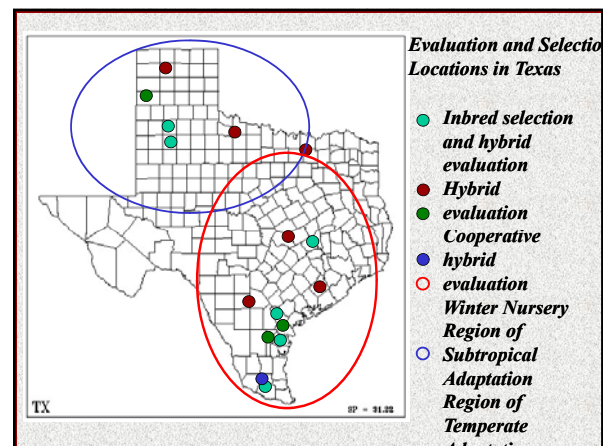
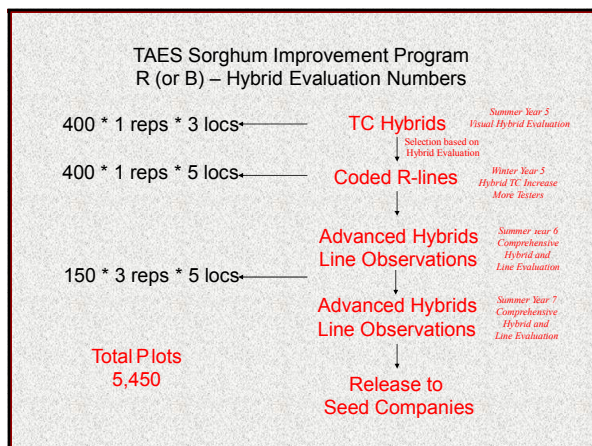
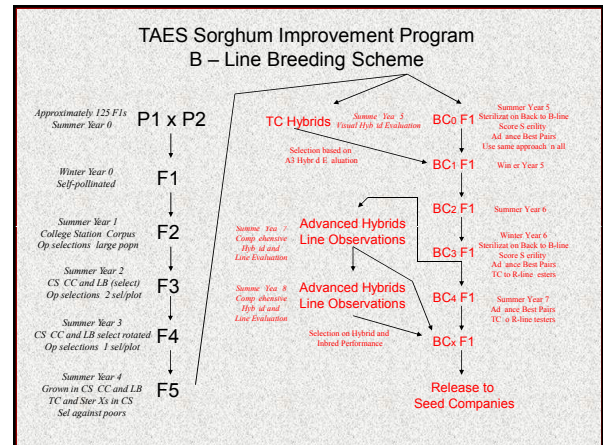
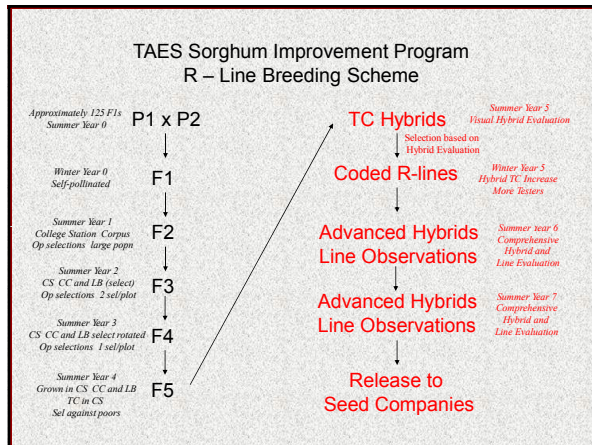
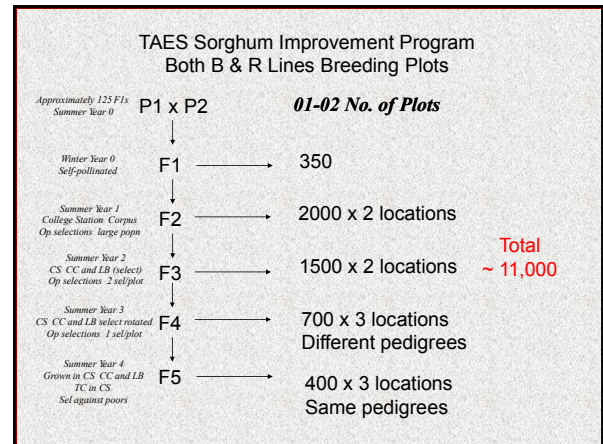
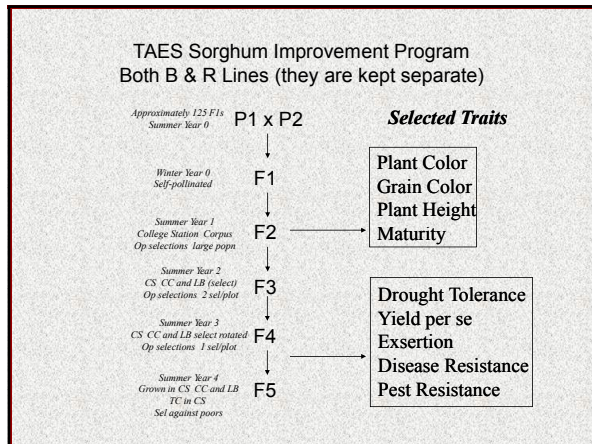
Emphasis - 2009

<ul style="list-style-type: none"> • Bioenergy 50% <ul style="list-style-type: none"> – Biomass – Sweet • Grain 40% <ul style="list-style-type: none"> – Traditional – Health Food • Forage 10% <ul style="list-style-type: none"> – Grazing – Silage 	<ul style="list-style-type: none"> • Emphasis Defined by Funding <ul style="list-style-type: none"> – Corporate (70%) <ul style="list-style-type: none"> • Ceres • Chevron – Public (25%) <ul style="list-style-type: none"> • Federal • State – Commodity (5%) <ul style="list-style-type: none"> • USCP
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TAES Sorghum Breeding Objectives

- Conduct research on the genetic control of agronomically important traits in sorghum
- Train undergraduate and graduate students in plant breeding and genetics
- Release improved germplasm and parental lines to the sorghum breeding industry







Total Numbers - Field

- Breeding Nursery (CC, BE, CS, LB, HW)
 - ~ 11,000 plots (15 acres)
- Advanced Evaluation (all over the place)
 - Line per se (~ 2,000 plots) (3 acres)
 - Hybrids (~ 3,500 plots) (12 acres)
- Research Nursery (WE, CC, BE, CS, LB, HW)
 - ~ 10,000 plots (14 acres)
- Seed Maintenance and Increase (CS, LB)
 - ~ 5,000 plots (8 acres)
- Standard Increases and Border (8 acres)



Total Numbers - Inventory

- Total : 81,468 as of April 1, 2002
 - Hybrids
 - Inbred
 - Research
 - Breeding
- 1992 through 2001 increases
- Must keep accurate weights on standard hybrids and inbred lines as they are used regularly



Data Management - Needs

- Pedigree Updates (must update automatically)
- Inventory Maintenance (keep track seed supply)
- Experimental Design and Randomization
- Labels – packaging, inventory, harvest
- FieldBooks – paper and computer
- Statistical Analysis
- Maps



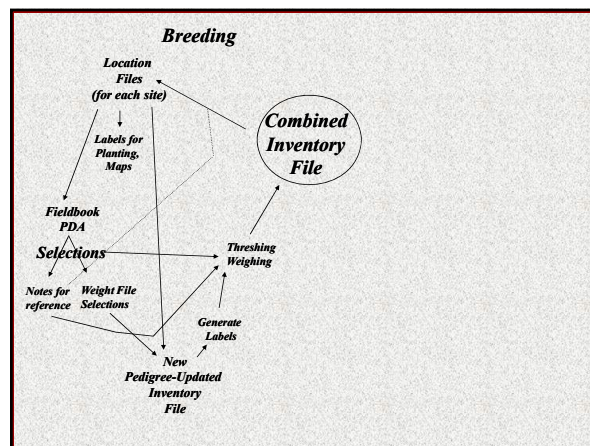
Data Management - Software

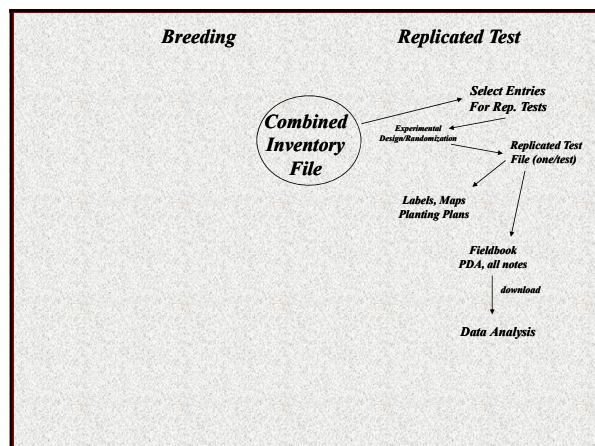
- Microsoft Excel
 - Maps
 - Field Books
 - Data Input
 - Pedigree Updating
 - Inventory Maintenance
 - Experimental Design and Randomization
 - Labels
- SAS
 - Statistical Analysis



Data Management - Hardware

- Desktop Computer and Printer
- Laptop Computer
- PDA – Compaq iPAQ 3765





2001 IFST Hybrid Trial – College Station

PLOT	BLOC	ENTRY	CODE	SOURCE	PED	GREE	NOTES	SE	Un	sd	P	GI	GM	Dy/H	Ex	Load	LR	AG	Yd	ds	TW	PM	YIELD	Notes			
101	1	1		BOTT92		ATXK76*RTX 30	RP	1	1	R	P	2		76	66	4	0	4	4	4	58	13.8	8104				
102	1	2		96C511661185		ATXK25*RTX 30	RP	1	1	R	P	2		77	55	4	0	4	4	5	58	13.5	7857				
103	1	3		06C51027101		ATXK61*RTX 36	WT	1	1	W	T	2	X	81	58	6	0	3	3	3	58	14.0	7071				
104	1	4		96C508612065		ATXK61*RTX 37	WT	1	1	W	T	2		80	64	6	0	5	2	3	58	13.9	7913				
105	1	5		96C519881187		ATXK61*RTX263	RT	1	1	R	T	1	X	83	57	8	0	6	2	4	3	57	14.1	6963			
106	1	6		06C512081226		ATXK61*RTX 36	WT	1	1	W	T	1	X	78	57	8	0	4	5	4	58	14.6	7939				
107	1	7		96C502072020		ATXK61*RTX 37	WT	1	1	W	T	1	X	81	69	7	0	3	4	3	58	14.6	7312				
108	1	8		06C510171009		ATXK61*RTX263	RT	1	1	R	T	1	X	83	72	10	0	3	6	4	55	14.6	6461	tail			
109	1	9		96C511761175		ATXK61*RTX 36	WT	1	1	W	T	2		76	56	4	0	5	2	3	58	13.8	6738				
110	1	10		96C5120 6720 5		ATXK61*RTX 37	WT	1	1	W	T	3		76	68	1	0	4	5	4	58	13.2	6838				
111	1	11		06C508767076		AB00P*RTX 36	WT	1	1	W	T	2		82	63	3	0	4	2	3	57	13.8	6386				
112	1	12		06C5079876787		AB00P*RTX 37	WT	1	1	W	T	3		80	68	7	0	2	3	2	3	57	13.8	7898			
201	2	1		06C5080268 9		AB011*RTX 37	RT	1	1	R	T	1	b	2		78	68	8	0	3	3	4	4	55.0	14.0	7655	
202	2	33		00.48A10001320		ATXK61*RTX263	WT	1	1	W	T	1	H	2	Y	81	75	5	0	2	4	3	3	58	13.9	7161	pd but tail
203	2	7		96C502072020		ATXK61*RTX 37	WT	1	1	W	T	1	H	2	Y	80	71	6	0	3	4	3	3	58	14.0	7664	pd but tail
204	2	28		06C506316533		ATXK61*RTX263	WT	1	1	R	T	1	H	1	Y	81	71	7	0	3	4	3	3	57	14.4	8562	pd but tail
205	2	36		00.48A10111251		AB011*RTX36	WT	1	1	R	T	1	H	1	Y	78	53	3	0	4	2	4	3	57	14.0	7799	
206	2	2		96C5116611165		ATXK25*RTX 30	RP	1	1	R	P	1	af	2		77	60	4	0	5	2	4	3	57	14.0	7717	
207	2	2		97C512171218		ATXK61*RTX103	RT	2	2	R	T	1	H	1		83	60	5	0	2	4	4	56	14.0	9488	in wd.	
208	2	6		06C5120672205		TX636*RTX 36	WT	3	1	W	T	1	H	1	Y	78	68	9	0	2	4	3	3	57.8	15.5	8109	pd but tail
209	2	22		96C503222319		ATXK61*RTX263	WT	1	1	W	T	1	H	1	Y	83	70	8	0	3	4	4	56	14.5	7655		
210	2	25		06C505615653		ATXK61*RTX30	RT	1	1	R	T	1	1		82	67	6	0	3	3	3	57	14.0	6887			
211	2	13		06C5068 108 3		AB011*RTX263	WT	3	1	R	T	1	b	1		76	64	8	0	3	2	3	3	56.2	13.5	7714	
212	2	27		06C506707076		ATXK61*RTX37	WT	2	1	W	T	1	2	Y	81	61	2	0	3	3	4	3	56.4	14.2	7076		

Once data is downloaded and checked, run standard programs SAS or Agrobise for Hybrid Performance (SCA), Male GCA, Female GCA.....

Once data is downloaded and checked, run standard programs SAS or Agrobases for Hybrid Performance (SCA), Male GCA, Female GCA.....

Entry	Block	Rep	Gen	Env	Year	Site	Entry	Block	Rep	Gen	Env	Year	Site	Entry	Block	Rep	Gen	Env	Year	Site	Entry	Block	Rep	Gen	Env	Year	Site
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	2	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1
3	1	3	1	1	1	1	3	1	1	1	1	1	1	3	1	1	1	1	1	1	3	1	1	1	1	1	1
4	1	4	1	1	1	1	4	1	1	1	1	1	1	4	1	1	1	1	1	1	4	1	1	1	1	1	1
5	1	5	1	1	1	1	5	1	1	1	1	1	1	5	1	1	1	1	1	1	5	1	1	1	1	1	1
6	1	6	1	1	1	1	6	1	1	1	1	1	1	6	1	1	1	1	1	1	6	1	1	1	1	1	1
7	1	7	1	1	1	1	7	1	1	1	1	1	1	7	1	1	1	1	1	1	7	1	1	1	1	1	1
8	1	8	1	1	1	1	8	1	1	1	1	1	1	8	1	1	1	1	1	1	8	1	1	1	1	1	1
9	1	9	1	1	1	1	9	1	1	1	1	1	1	9	1	1	1	1	1	1	9	1	1	1	1	1	1
10	1	10	1	1	1	1	10	1	1	1	1	1	1	10	1	1	1	1	1	1	10	1	1	1	1	1	1
11	1	11	1	1	1	1	11	1	1	1	1	1	1	11	1	1	1	1	1	1	11	1	1	1	1	1	1
12	1	12	1	1	1	1	12	1	1	1	1	1	1	12	1	1	1	1	1	1	12	1	1	1	1	1	1
13	1	13	1	1	1	1	13	1	1	1	1	1	1	13	1	1	1	1	1	1	13	1	1	1	1	1	1
14	1	14	1	1	1	1	14	1	1	1	1	1	1	14	1	1	1	1	1	1	14	1	1	1	1	1	1
15	1	15	1	1	1	1	15	1	1	1	1	1	1	15	1	1	1	1	1	1	15	1	1	1	1	1	1
16	1	16	1	1	1	1	16	1	1	1	1	1	1	16	1	1	1	1	1	1	16	1	1	1	1	1	1
17	1	17	1	1	1	1	17	1	1	1	1	1	1	17	1	1	1	1	1	1	17	1	1	1	1	1	1
18	1	18	1	1	1	1	18	1	1	1	1	1	1	18	1	1	1	1	1	1	18	1	1	1	1	1	1
19	1	19	1	1	1	1	19	1	1	1	1	1	1	19	1	1	1	1	1	1	19	1	1	1	1	1	1
20	1	20	1	1	1	1	20	1	1	1	1	1	1	20	1	1	1	1	1	1	20	1	1	1	1	1	1
21	1	21	1	1	1	1	21	1	1	1	1	1	1	21	1	1	1	1	1	1	21	1	1	1	1	1	1
22	1	22	1	1	1	1	22	1	1	1	1	1	1	22	1	1	1	1	1	1	22	1	1	1	1	1	1
23	1	23	1	1	1	1	23	1	1	1	1	1	1	23	1	1	1	1	1	1	23	1	1	1	1	1	1
24	1	24	1	1	1	1	24	1	1	1	1	1	1	24	1	1	1	1	1	1	24	1	1	1	1	1	1
25	1	25	1	1	1	1	25	1	1	1	1	1	1	25	1	1	1	1	1	1	25	1	1	1	1	1	1
26	1	26	1	1	1	1	26	1	1	1	1	1	1	26	1	1	1	1	1	1	26	1	1	1	1	1	1
27	1	27	1	1	1	1	27	1	1	1	1	1	1	27	1	1	1	1	1	1	27	1	1	1	1	1	1
28	1	28	1	1	1	1	28	1	1	1	1	1	1	28	1	1	1	1	1	1	28	1	1	1	1	1	1
29	1	29	1	1	1	1	29	1	1	1	1	1	1	29	1	1	1	1	1	1	29	1	1	1	1	1	1
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32	1	32	1	1	1	1	32	1	1	1	1	1	1	32	1	1	1	1	1	1	32	1	1	1	1	1	1
33	1	33	1	1	1	1	33	1	1	1	1	1	1	33	1	1	1	1	1	1	33	1	1	1	1	1	1
34	1	34	1	1	1	1	34	1	1	1	1	1	1	34	1	1	1	1	1	1	34	1	1	1	1	1	1
35	1	35	1	1	1	1	35	1	1	1	1	1	1	35	1	1	1	1	1	1	35	1	1	1	1	1	1
36	1	36	1	1	1	1	36	1	1	1	1	1	1	36	1	1	1	1	1	1	36	1	1	1	1	1	1
37	1	37	1	1	1	1	37	1	1	1	1	1	1	37	1	1	1	1	1	1	37	1	1	1	1	1	1
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39	1	39	1	1	1	1	39	1	1	1	1	1	1	39	1	1	1	1	1	1	39	1	1	1	1	1	1
40	1	40	1	1	1	1	40	1	1	1	1	1	1	40	1	1	1	1	1	1	40	1	1	1	1	1	1
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46	1	46	1	1	1	1	46	1	1	1	1	1	1	46	1	1	1	1	1	1	46	1	1	1	1	1	1
47	1	47	1	1	1	1	47	1	1	1	1	1	1	47	1	1	1	1	1	1	47	1	1	1	1	1	1
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49	1	49	1	1	1	1	49	1	1	1	1	1	1	49	1	1	1	1	1	1	49	1	1	1	1	1	1
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52	1	52	1	1	1	1	52	1	1	1	1	1	1	52	1	1	1	1	1	1	52	1	1	1	1	1	1
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55	1	55	1	1	1	1	55	1	1	1	1	1	1	55	1	1	1	1	1	1	55	1	1	1	1	1	1
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57	1	57	1	1	1	1	57	1	1	1	1	1	1	57	1	1	1	1	1	1	57	1	1	1	1	1	1
58	1	58	1	1	1	1	58	1	1	1	1	1	1	58	1	1	1	1	1	1	58	1	1	1	1	1	1
59	1	59	1	1	1	1	59	1	1	1	1	1	1	59	1	1	1	1	1	1	59	1	1	1	1	1	1
60	1	60	1	1	1	1	60	1	1	1	1	1	1	60	1	1	1	1	1	1	60	1	1	1	1	1	1
61	1	61	1	1	1	1	61	1	1	1	1	1	1	61	1	1	1	1	1	1	61	1	1	1	1	1	1
62	1	62	1	1	1	1	62	1	1	1	1	1	1	62	1	1	1	1	1	1	62	1	1	1	1	1	1
63	1	63	1	1	1	1	63	1	1	1	1	1	1	63	1	1	1	1	1	1	63	1	1	1	1	1	1
64	1	64	1	1	1	1	64	1	1	1	1	1	1	64	1	1	1	1	1	1	64	1	1	1	1	1	1
65	1	65	1	1	1	1	65	1	1	1	1	1	1	65	1	1	1	1	1	1	65	1	1	1	1	1	1
66	1	66	1	1	1	1	66	1	1	1	1	1	1	66	1	1	1	1	1	1	66	1	1	1	1	1	1
67	1	67	1	1	1	1	67	1	1	1	1	1	1	67	1	1	1	1	1	1	67	1	1	1	1	1	1
68	1	68	1	1	1	1	68	1	1	1	1	1	1	68	1	1	1	1	1	1	68	1	1	1	1	1	1
69	1	69	1	1	1	1	69																				

From: [Bill Rooney](#)
To: ["Patricia Klein"](#)
Subject: RE: PS testcross file
Date: Tuesday, August 18, 2009 1:20:00 PM
Attachments: [PS TC Notes 7-24.XLS](#)

Trish:

I have the July 24 file (attached), but Dan took notes on August 7th as well. I don't have those and probably won't get them until he returns from Mexico.

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Patricia Klein [<mailto:pklein@tamu.edu>]
Sent: Tuesday, August 18, 2009 9:21 AM
To: Bill Rooney
Subject: PS testcross file

Bill

Not sure if you are in Mexico with Dan or not but if you aren't, would it be possible for you to send me the latest file containing the PS testcross phenotyping if you have it. Dan indicated he could send it next week but I was hoping to get it prior to the Ceres meeting on Tuesday so that I could take a look at the data.

Thanks
Trish

Dr. Patricia Klein
Associate Professor
Institute for Plant Genomics and Biotechnology
TAMU 2123
Texas AgriLIFE Research
Texas A&M University
College Station, TX 77843-2123

phone: 979-862-6308
fax: 979-862-4790

From: [Scott Vajdak](#)
To: [Bill L Rooney](#)
Subject: RE: questions
Date: Monday, September 28, 2009 11:21:30 AM

Yes, that will work. If i'm out of my office (i'm in the building) you can leave it with Tami or Li right next door.

-Scott-

>>> "Bill Rooney" <wlr@tamu.edu> 9/28/2009 10:34 AM >>>
Scott:

I can bring the computer to you just after 2pm. Will that work?

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Scott Vajdak [<mailto:SVajdak@ag.tamu.edu>]
Sent: Monday, September 28, 2009 9:50 AM
To: Bill L Rooney
Subject: Re: questions

Morning Dr. Rooney,

I did get your message and have ordered that HP Netbook with the extra battery for it (I did not order the extra battery for your existing 8510w).

To establish the Verizon Wireless Internet connection for it, I believe you'll have to fill out this form with A&M's telecommunications dept. (I got the link from Carol)
<http://telecom.tamu.edu/files/workOrderCellPhone.pdf> What you're going to need is called a Verizon Mobile Broadband data-plan. The service costs \$44.99/mo. for up to 5GB's downloaded- this should be way more than plenty for you if you're just checking email and surfing the net. I don't know all of the information that needs to be filled in so you may want to get with Carol Rhodes or Jana McDonald at the telecommunications dept. at 845-1952. She said that they "may" need the laptop to actually be here before they process the paperwork- need serial number or MAC address from it??

On your current laptop (8510w) are you certain it is the internal part that is failing (not the adapter or cord?). I will check if HP will cover that but we definitely need to try if it's the internal part because that may involve replacing the entire motherboard- if we have to purchase it, they can run up to \$400 or more. If there is a chance that I could have the laptop here in my office for an hour or so I could contact HP and be able to test it with them on the phone.

-Scott-

>>> "Bill Rooney" <wlr@tamu.edu> 9/28/2009 7:39 AM >>>
Scott:

First, did you get my response on the small laptop? If not, let me know.

Second, On my current laptop, the power cord insert slot on the laptop is now non-functional and needs to be replaced. I can charge the computer by on my docking station, but can't otherwise. Should I take that to get fixed locally or do you do that?

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

From: [Bill Rooney](#)
To: ["John Mullet"; "Stelly David"](#)
Subject: RE: Recent DARAP draft
Date: Sunday, September 13, 2009 12:16:00 PM
Attachments: [DARPA RD Plan 91209 v5ds wlr.doc](#)
[DARPA budget v2.1.xls](#)

John and David:

I used David's version and made a few untracked changes.

I agree with David - the Figure 3 with images is much more effective than the other.

Finally, I've attached a budget summary (excel file) to include as appropriate.

I'll be in Amarillo for Monday only. Back in town on Tuesday.

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Stelly_David [<mailto:stelly@tamu.edu>]
Sent: Saturday, September 12, 2009 2:28 PM
To: John Mullet
Cc: Stelly_David; Bill Rooney
Subject: Re: Recent DARAP draft

Here is my version (no tracking on) ... I listened to it and read it carefully, as I like to do on near-final proofs: I found very few significant errors. I hyphenated some compound modifiers to improve clarity a little. A few figures looked awfully disproportionate, so I changed them but you might simply want to reimport the originals and LOCK their proportions. I replace the WH figure with the one with pictures in it. Look'g good in my opinion.

I will (try to) create a PDF to show locations of my modifications and send it soon.

DS

From: [Stelly David](#)
To: [John Mullet](#)
Cc: [Stelly David](#); [Bill Rooney](#)
Subject: Re: Recent DARAP draft
Date: Saturday, September 12, 2009 2:28:03 PM
Attachments: [DARPA_RD_Plan_91209_v5ds.doc](#)
[ATT00014.txt](#)

Here is my version (no tracking on) ... I listened to it and read it carefully, as I like to do on near-final proofs: I found very few significant errors. I hyphenated some compound modifiers to improve clarity a little. A few figures looked awfully disproportionate, so I changed them but you might simply want to reimport the originals and LOCK their proportions. I replace the WH figure with the one with pictures in it. Look'g good in my opinion.

I will (try to) create a PDF to show locations of my modifications and send it soon.

DS

From: [Bill Rooney](#)
To: ["John Mullet"](#)
Subject: RE: Recent DARAP draft
Date: Sunday, September 13, 2009 2:51:00 PM
Attachments: [DARPA budget v2.1.xls](#)
[DARPA RD Plan 91209 v5ds wlr.doc](#)

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: John Mullet [<mailto:jmullet@TAMU.EDU>]
Sent: Sunday, September 13, 2009 2:16 PM
To: Bill Rooney
Subject: Re: Recent DARAP draft

Thanks Bill. Could you resend the attachment - it did not arrive. I plan to add a cover page with a list of PIs.

John

On Sep 13, 2009, at 12:16 PM, Bill Rooney wrote:

> John and David:
>
> I used David's version and made a few untracked changes.
>
> I agree with David - the Figure 3 with images is much more effective
> than
> the other.
>
> Finally, I've attached a budget summary (excel file) to include as
> appropriate.
>
> I'll be in Amarillo for Monday only. Back in town on Tuesday.
>
> Regards,
>
> Bill
>
> Dr. William L. Rooney
> Professor, Sorghum Breeding and Genetics
> Chair, Plant Release Committee
> Texas A&M University
> College Station, Texas 77843-2474
> 979 845 2151
>
>

> -----Original Message-----

> From: Stelly_David [<mailto:stelly@tamu.edu>]
> Sent: Saturday, September 12, 2009 2:28 PM

> To: John Mullet
> Cc: Stelly_David; Bill Rooney
> Subject: Re: Recent DARAP draft
>
>
> Here is my version (no tracking on) ... I listened to it and read it
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> pictures in it. Look'g good in my opinion.
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> I will (try to) create a PDF to show locations of my modifications
> and send it soon.
>
> DS
>
> <DARPA_RD Plan_91209_v5ds_wlr.doc><DARPA budget v2.1.xls>

From: [David Baltensperger](#)
To: [Bill L Rooney](#)
Subject: RE: Reference request for Dr. Steve Hague
Date: Monday, August 17, 2009 4:41:45 PM
Attachments: [Hague.pdf](#)

attached!

David D. Baltensperger
Professor and Head
Soil and Crop Sciences
Texas A&M University
2474 TAMU
College Station, Texas 77843-2474

Phone 979-845-3041
Fax 979-845-0456
Email dbaltensperger@ag.tamu.edu

>>> "Bill Rooney" <wlr@tamu.edu> 8/17/2009 3:53 PM >>>
David:

I can look at Hague's package. Have Judy send it to me.

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: David Baltensperger [<mailto:DBaltensperger@ag.tamu.edu>]
Sent: Monday, August 17, 2009 9:42 AM
To: Bill L Rooney
Subject: Reference request for Dr. Steve Hague

David D. Baltensperger
Professor and Head
Soil and Crop Sciences
Texas A&M University
2474 TAMU
College Station, Texas 77843-2474

Phone 979-845-3041
Fax 979-845-0456

Email dbaltensperger@ag.tamu.edu

2009-2010
Dossier Cover Sheet for Third-Year Review of Tenure-Track Faculty

Name of Candidate: Steve Hague

Department: Soil and Crop Science

Current Rank: Assistant Professor

Mandatory Year for Tenure: 2013

Contents	Tab/Page #
1. Candidate's statement on teaching, research and service.....	1
2. Candidate's curriculum vitae (including candidate's confirmation on correctness).....	4
3. Candidate's acknowledge of contents of the P&T dossier as submitted to the departmental review committee.....	28
4. Departmental evaluation of quality of teaching, research, service, and other activities.....	XX
5. Statement on qualifications of <i>internal reviewers</i> , along with internal reviewers' letters evaluating the candidate's performance.....	XX
6. Complete departmental committee report and recommendation.....	XX
7. Recommendation of Department Head.....	XX
8. Complete College Committee Report and Recommendation.....	XX
9. Recommendation of Dean.....	XX
10. Other materials and documentation as desired.....	XX

Summary of Votes and Recommendation

Recommended Action by	Yes	No	Absent	Recuse or Abstain	Total Eligib le	Date
Department Committee						
Department Head						
College Committee						
Dean						

Item 1. Statement on teaching, research, extension and service

Land grant universities were established by the Morrill Act of 1862 in response to a changing society and economy in the United States. The events occurring in the early 1860s certainly prompted Americans acknowledge the need to improve agriculture productivity and industrial capability as essential components of a free, prosperous and secure nation. As the United States continued its expansion westward into areas that were unlike any of those found in the East, new farming and industrial techniques were needed. Therefore the Hatch Act of 1887 and subsequently the Smith-Lever Acts of 1914 created the Land Grant system that we know today. The Land Grant system helped to tame the 'Great American Desert', allowed the South to survive the invasion of the boll weevil, and transformed the United States into an economic juggernaut.

So how are Land Grant Universities still relevant today? The design and function of these systems still have them into positions to meet the greatest challenges our planet and society encounters today: exploding human populations, dwindling energy supplies, and natural resource preservation.

There are now more than 6.7 billion people alive today. Most cities are overcrowded. Valuable farmland is being consumed by urban sprawl. Natural habitats for many of the world's species are being lost at a rapid pace. Compounding the situation, most people reside in countries rapidly developing economically such as India and China, which will increase the resource liability as they consume more goods and services. While the solutions to population stabilization are sociological, the burden of taking care of these people in the intern is falling to applied scientists.

Concomitant with the population expansion is escalating energy demands. Much of our energy is supplied from non-renewable fossil fuels. These are not sustainable and have dubious affects on the environment. Developing alternative energy sources from wind, solar, ocean kinetics, cold fission, plant materials, and even moon rocks; is a scientific necessity for the preservation of our civilized world. Land Grant Universities are on the cutting edge of developing solutions for our energy crisis.

Lastly the destruction and consumption of natural resources is threatening the biological balance of the world. Contamination of water, soil, and air, destruction of natural habitats, and losses of species are changing the world at a faster rate than most of us are comfortable witnessing. Land Grant Universities can be instrumental in stemming this change.

After a cotton growers meeting in Australia that I attended in 2003, I saw a napkin that one of the farmers had used to jot down his thoughts. It read, " Things agriculture can do to: 1) Do nothing and allow billions to starve and send the world into complete chaos, 2) Clear millions of acres of rainforest to plant food crops, or 3) Use the latest scientific technology with the best seed, fertilizer, and pesticides to improve production on existing farmland."

These simple thoughts by an anonymous Australian will always stay with me as I pursue the goals and objectives of the Land Grant system. Therefore my approach as a member of this Land Grant Institution is to foster economic opportunities at home and abroad, develop and conserve energy sources, and search for improved efficiencies in production agriculture.

Teaching

My primary charges with teaching involve formal courses, graduate student advisement, and undergraduate agronomy club advisement. In keeping with the high academic standards of Texas A&M, faculty should recruit students with high-potential and passion for their respective disciplines, provide students with the most current information, and promote and propel those students into the best possible career paths.

Recruiting high-quality students is one of the most important efforts I make as a faculty member of the Soil and Crop Science Department at Texas A&M University. The discipline of agronomy and more specifically plant breeding is not well-understood by the general population, let alone high school students. Agronomy is not popularized in movies or television shows. Often times the work of agriculturists is seen as “someone else’s job,” and there can even be a level of intimidation. It is not always easy for youth growing up in urban settings to feel comfortable pursuing a career associated with rural America. In the 21st century, only a small fraction of students grow up in rural communities let alone on a commercial farm. The chasm between food producers and consumers will continue to expand, but consequences to public policy, food safety, animal welfare, environmental quality, and international efforts to alleviate hunger and poverty would be too severe if this gap is not bridged.

In my formal courses, I emphasize connections among academic disciplines. I typically assign extensive writing assignments and encourage students to think independently. Students too often have the notion that there is only one answer, one correct method, one system, or one right way. I encourage higher-order thinking skills and try to avoid simple and short term memorization of facts and formulas. Rather I attempt to instill methodology that enables students to understand complex concepts and situations they will encounter in the decades after they graduate.

I also feel it is important that students present themselves in a professional manner. Whether it’s knowing how a tie should be worn, developing a quality resume, or knowing how to confidently shake hands; students need to be leaving Texas A&M with a degree in hand and the ability to promote themselves in the job market. This is why I chose to work with the Agronomy Club. It provides the best opportunity to guide students in professional and unscripted settings. Students in the Agronomy Club are expected to take on leadership roles, and represent themselves and Texas A&M University in such a manner that they appear credible future leaders in agriculture and society.

Graduate students advisement is more detailed and frequent. I see my graduate students on a daily basis. I provide counsel not only to their academic and research endeavors, but also for

many of their career aspirations. For research projects, I try to set forth relevant projects that not only benefit the stakeholders of Texas, but also provide enough cross-discipline training so students become well-rounded scientists. They are encouraged to take a core set of classes, but I also want them to venture outside their comfort zones. I want them to hone their communication skills. Therefore students are provided ample opportunities to write, speak, and design visual presentations that communicate scientific findings. I provide my graduate students opportunities to participate in state, regional, national, and international scientific conferences and meetings. I make great efforts to introduce them and allow them to interact with private industry representatives.

Research

Most of my career has been spent as a cotton plant breeder. Recently I have had the opportunity to initiate breeding programs in other oilseed crops such as castor, sunflowers, rapeseed and jatropha. Through my research, I try to address the most pressing needs of society and Texas in particular. Crop production in Texas is generally limited by soil water availability. Most West Texas cotton farmers will tell you that they do not really sell cotton; it's just the amount of water that can be converted to cotton fibers and seeds. With that in mind, I have made improvement of water-use efficiency a hallmark of my breeding programs in all crops.

In addition to water-use efficiency, my breeding priorities for oilseed crops have been to address energy needs. Many oilseed crops have been understudied and neglected. Their potential to fill important production niches is crucial to solving our nation's energy needs. A key aspect will be to develop oilseed crops that are productive and economically grown on land not well-suited for food crops. Jatropha and castor beans fit this profile well in Texas. Both are drought tolerant, require relatively low amounts of nitrogen and phosphate fertilizer, heat tolerant, and tolerate high-saline soils. Promotion of oilseeds grown in Texas for bio-diesel is appropriate for other reasons as well. Texas already has the world's most sophisticated crude oil refinery systems. Therefore, most of the infrastructure to convert vegetable oil into bio-diesel is already in place and transportation is more affordable if these oilseeds are produced in Texas in comparison to other regions of the United States or internationally.

With plant breeding, advances are typically slow. Cotton, for example, requires about 12 years from the initial hybridization, until a completed cultivar is released for cultivation. Species with slower reproductive habits like jatropha may require decades before vast genetic improvements are realized. This is why it is crucial to access and collaborate with existing breeding programs for elite germplasm material. Moreover, with ever changing markets and consumer demands, it is incumbent that a broad array of biotypes exists within a program.

Item 2.

CURRICULUM VITAE

August 12, 2009

I. Personal Information

Name: Steve Hague

Rank: Assistant Professor

Campus address: Soil and Crop Science Department, 370 Olsen Blvd, College Station, TX, 77843-2474

Date of appointment: July 24, 2006

II. Education

- Texas A&M University, Department of Soil and Crop Science, Ph.D. - Plant Breeding, 2000.
- Texas Tech University, Department of Agronomy, Horticulture and Entomology, M.S. – Agronomy, 1997.
- Texas A&M University –Commerce, Department of Agricultural Sciences, B.S. with the highest honors – Agriculture science with a plant science emphasis, 1994.

III. Experience

Current Position

- July 24, 2006 – present
- Current appointment : 75% research; 25% teaching
- Position description:
 - Research efforts are focused on plant breeding and the improvement of cotton, sunflowers, jatropha, castor beans, and rapeseed. The breeding programs are primarily field-oriented and phenotypic in nature. Some molecular techniques are used as well as collaboration to accelerate and identify elite germplasm. Extensive use of wild and exotic germplasm is used to enhance and expand allelic diversity from which genetic progress can be made. Specific areas of improvement for cotton include water-use efficiency, fiber quality improvement, and earliness of crop maturity. For other oilseed crops, programs are focused on improving adaptability to Texas, insect and disease resistance, increasing productivity through further domestication, drought tolerance, salt tolerance, and improving oil

quality specifically for the use in bio-diesel production. Supervisory roles include one research technician, three graduate research assistants, and five undergraduate student workers.

- Teaching duties include advising graduate students seeking Masters of Science and Ph.D.'s in agronomy and plant breeding. In addition, there is the advisement of the undergraduate agronomy club. Classes taught include SCSC 304, *plant breeding and genetics*, and SCSC 421 and SCSC621, *study abroad – international agricultural research in Mexico*.
- Service duties include membership and active participation in the International Cotton Genome Initiative, American Society of Agronomy, Crop Science Society of America, Texas - American Society of Agronomy, and Association for the Advancement of Industrial Crops. In addition, editing responsibilities are for the Journal of Cotton Science and frequent reviewer for the Journal of Crop Science.

Past Positions

- December 2002 – July 2006
- Cotton trait introgression breeder/station manager for Bayer CropScience at Leland, MS.
- Job description: responsible for transgenic herbicide resistant and insect resistant trait introgressions into pre-commercial breeding lines. Responsibilities also included regulated transgenic event compliance and testing, counter-season production in Costa Rica (~150 acres annually), greenhouse management, supervision of eight full-time employees and 15 temporary employees, safety compliance and training, \$2.15 million budget, and disclosure of all station and program activities to Bayer CropScience management and Cotton Seed Distributors of Australia.
- Accomplishments:
 - Pivotal role in commercialization and deregulation of LibertyLink herbicide tolerance trait for cotton, elite event selection for GlyTol herbicide resistance, and TwinLinks insect resistance traits.
 - Oversaw construction of 10,000 sq. feet of new greenhouse construction, a 4,000 sq. foot ginning building, and purchase of a new cotton picker harvester.
 - Released 16 commercial cultivars (FiberMax) which accounted for 36.99% market share in Texas and 17.68% share in the U.S. in 2008 according to the USDA-AMS. Ten other cultivars were within 1-2 years of being released at the time of his departure.
 - In 2006, at the time of departure from Bayer CropScience, was on track to complete an entire product portfolio rollover (18 cultivars) in a three year period.
- June 2000 – December 2002
- Assistant Professor, Cotton and Soybean Research Agronomist for LSU AgCenter – Northeast Research Station, St. Joseph, LA.
- Job description: Research methods to improve crop production of cotton and soybean for the Northeast Louisiana region. Areas of investigation included irrigation efficiency, soil

fertility, crop rotation, planting dates and plant growth regulators, official commercial cotton and soybean cultivar trials, precision agronomy assessments and applications using satellites and other NASA related technology, and cotton breeding activities.

- Responsibilities: supervision of two full-time research technicians, and 5 student workers. Relate research findings to regional and national grower organizations, as well as extension personnel.
- Expertise: expected to be the state irrigation specialist for cotton and soybean, cotton and soybean varieties and adaptation.
- Accomplishments:
 - Cotton and soybean commercial cultivar trials 2000-2002. Cotton trials were found to be the most definitive of any in the state.
 - Irrigation studies with both cotton and soybean determined that improvements in yield with irrigation in NE Louisiana were not economically beneficial.
 - Determined that approximately 50 lbs. of useable carry-over nitrogen can be expected from a corn crop to the following cotton crop.
 - Found reniform nematodes are most suppressed with sorghum rotation in comparison to wheat, corn, or soybean for a subsequent cotton crop. Also, weed species can be important hosts for reniform nematodes.
 - In collaboration with agriculture economists, reported the most profitable rotation schemes for growers in NE LA usually involve cotton and corn, but heavily dependent on price fluctuations more so than productivity associated with corn, cotton, wheat or soybeans. Rotations involving sorghum generally were not profitable due to the traditional low-value of sorghum in relation to corn.
 - Discovered that using a SPAD meter, nitrogen content in cotton photosynthate will increase 5-fold when the plant reaches physiological cut-out at 5 NAWF.

IV. Teaching

Program statement

Dr. Steve Hague's teaching activities place an emphasis on explaining and promoting plant breeding to undergraduate students, providing practical training to graduate students, and preparing them for the challenges and opportunities in the seed industry. The courses he teaches are often the first exposure students will have to plant breeding. Therefore, he tries to highlight the opportunity and need for plant breeding both on a commercial and humanitarian basis. By providing a broad overview of plant breeding, students can then narrow their focus of studies and research into areas of their own interest. Dr. Hague uses the internet to reach students by using websites in the classroom, and social networking sites to stay in touch with students outside the classroom. Most students today have never known a world without the internet, and it is important to utilize this tool to help educate and relate to them. All of the classes that he has taught have shown increased enrollment in subsequent semesters. His teaching has prompted many students to take additional plant breeding courses and/or seek out graduate school opportunities.

He has also placed a high-value on introducing and allowing students to interact with accomplished agriculturists. He has invited guest lecturers into his classroom on a regular basis. Dr. Hague makes a concerted effort to take graduate students on international trips, professional meetings, and participate in campus related events when hosting potential corporate partners. There is considerable emphasis towards international work. He has invited in Peace Corps recruiters to speak with his classes. Many of the lecture examples use international plant breeding scenarios.

Courses Taught

Courses	Credit hours	Frequency	Student Evaluation Avg.
Undergraduate Courses			
SCSC 304	3	Spring Sem (3X)	4.81
SCSC 421	3	Fall Sem (3X)	4.85
Graduate Courses			
SCSC 621	3	Fall Sem (3X)	4.65
SCSC 689	3	Fall Sem (1X)	3.88
		Departmental Avg.	4.40

Classes

SCSC 304 Plant breeding and genetics

Objectives: students will learn cellular genetic processes such mitosis and meiosis in the nucleus, mitochondria, and chlorophyll organelles, Mendellian segregation ratios and principles, chromosomal arrangement and affects of ploidy levels on plant reproduction and inheritance of alleles. Modern breeding tools such as molecular marker technology and transgenic capabilities will also be introduced. In addition, he teaches about mutation methods to increase allelic diversity. Phenotypic methods of plant breeding such as pedigree breeding, recurrent selection, mass selection, etc. are presented. Moreover, breeding organizations such as the CGIAR system are discussed as well as career opportunities in plant breeding. Guest lecturers are brought in when available. Number of students: 2007 – 28; 2008- 50; 2009-55.

Evaluations: avg score of 4.81. Strengths: enthusiasm, respect of students, fairness. Weakness: time of day the class is taught.

Pre- and Post course survey. This is a survey students completed on the first day and last day of class. It gauges their opinions of plant breeding may have changed throughout SCSC 304.

	% of students responding	
	Pre	Post
1. How important is plant breeding to your quality of life and future?		
A. Not at all	0	0
B. Very little	12	5
C. Somewhat	38	16
D. Very Important	30	30
E. Critical	20	49
2. Do you plan on pursuing a career in plant breeding?		
A. No chance	35	34
B. Probably not	23	13
C. Maybe	4	8
D. Probably	11	24
E. Definitely	7	21
3. Do you feel comfortable eating transgenic food?		
A. Yes	65	72
B. No	28	14
C. Depends on the gene or food	7	14
4. Are publicly funded breeding programs such as university, USDA, and CGIAR programs receiving enough support based on their results and potential impacts?		
A. Don't know	76	5
B. They receive too much support	12	18
C. They receive the correct amount	11	39
D. They don't receive enough support	1	62
5. After graduation, what are your career plans?		
A. Graduate school	32	44
B. Work in the public sector	23	26
C. Work in the private sector	45	30

The interpretation of the results suggests most students coming into SCSC 304 have some idea about the relevance of plant breeding in their lives, but after the class most feel it is a more important. Students showed a greater likelihood of becoming a plant breeder after taking this class. Most feel comfortable eating transgenic food both before and after the class. Those who did not want any transgenic food became more open-minded about transgenic food and willing to judge each product on its individual merit. The most dramatic shift of opinion was about the support of public breeding programs. Most students had no idea coming into the class about the level of support versus impact, but most left believing the programs need more support. Finally, a slight shift in career plans was noted from public sector jobs to graduate school and public jobs.

SCSC 421 Study Abroad – International Agricultural Research in Mexico

Objectives: students travel for two weeks in Mexico. We visit the CIMMYT research stations at El Batán, Toluca, Tlatizapan, and Aqua Fria. At the CIMMYT stations, students tour breeding projects related to wheat and corn. They also see agronomic studies, molecular biotechnology labs, economic assessment projects, food quality efforts, and visit with large-scale and subsistence farmers. Students also go to the INIFAP headquarters in Mexico City and meet with Dr. Pedro Brajich, Director General of INIFAP. We tour the INIFAP Valle De Mexico station and see presentations and research projects dealing with corn, wheat, pulse crops, and food quality. The other component of the trip is to have students understand the cultural importance of agriculture on Mexican civilization. We visit ancient ruins of the Teotihuacan, Totonacs, Mayans, and Aztecs. We stay one night in the colonial silver town of Taxco which is a world heritage site. Students spend 3 days in Mexico City visiting the Anthropology Museum, federal buildings decorated with Diego Rivera murals, see a live performance of the Ballet Folklórico, and experience the vibrant street lifestyle of Mexico City. After returning from the trip, students provide a seminar to the Soil and Crop Science Department about a specific topic from their experiences in Mexico.

This trip has been funded by an annual \$35,000 grant from Dr. Norman Borlaug's Butler Chair fund. Dr. Ronald Cantrell, former Director General of the International Rice Research Station, accompanies the class during the trip. He provides insight into international agricultural research throughout the trip.

SCSC 621 Study Abroad – International Agricultural Research in Mexico

Objectives: similar to those of the SCSC 421 since the trip coincides, but graduate students are expected to do more extensive reports and assessments than undergraduate students. Graduate students are encouraged to meet with CIMMYT researchers one-on-one to discuss their own research projects.

SCSC 689 Special topic – Experimental designs in agriculture

Objectives: this class was designed to answer many of the basic and practical research questions agronomy graduate students encounter. Topics of interest included agriculture field designs including complete randomized designs, randomized complete block designs, factorial designs, and latin squares. Dr. Hague introduced key assumptions of experimental designs, designs for reducing errors, as well as methods of comparing means. Other topics included data

transformation, and sample designs for experiments over time such as forestry, horticulture, or turf research projects. The course was designed to build upon the theoretical concepts of STATS 651 and 652 by providing agronomy related examples. A large component of the course was using SAS computer codes to analyze data sets. Considerable time was spent covering SAS codes and programming for different agronomy research scenarios.

Course design: Dr. Hague was asked to design and teach this class shortly before it started in the fall of 2007 until a newly hired professor, Dr. Amir Ibrahim, could assume teaching responsibilities. Dr. Ibrahim took over in mid-November and covered regression analysis. The class is now his responsibility, but Dr. Hague occasionally lectures for him as the need arises.

Courses Under Development

To address educational needs in the department, two new courses are currently being developed.

- *Plant breeding and genetics* (distance learning): this course will mirror SCSC 304 that is currently taught in the spring semester. It will be part of the curriculum for the proposed Master of Science in plant breeding – distance education program. This course will likely be the first course for students with no background in genetics or plant breeding. The projected completion date in December 2009.
- *Agriculture and natural resources in Chile* (study abroad): ground work is being laid for a semester long program culminated with a two-week study abroad trip to Chile. Areas of interest will be crops grown in the heartland of Chile such as canola, grapes, forages, and fruit trees. Students will also be provided with treks to national parks to see wild ancestral plants of current commercial crops, unique soil formations, and forestry projects. The projected launch of this program will be the spring semester in 2011.

Creativity in teaching

Because most of the students Dr. Hague encounters are technically savvy with computers and the internet, he attempts to stay connected through this medium. At the beginning of each class, he develops a group e-mail list so he can efficiently communicate with students outside of the classroom. Dr. Hague also makes extensive use of the departmental teaching webpage by posting lecture power point slides, handout materials, homework assignments, reading assignments, and interesting articles for student access. He also developed a Facebook page, a blog, and a twitter page to increase availability to students.

His largest class, SCSC 304, begins at 8AM. Many students have a difficult time staying alert. As a consequence, he finds it useful to make use of short video clips from the internet, computer games, and direct student involvement in demonstrations related to plant breeding. This tends to break the monotony of straight lectures. He conducts review sessions for students prior to exams. He requires students to write a 5-page essay which is designed to improve their writing skills and higher-order thinking skills. He assigns a book covering food biotechnology ethics. After the quiz over the book there is an open discussion about transgenic food in which students are

encouraged to express their opinions, which are generally more thoughtful and educated than appear in the popular press.

Performance of students in graduate school

To date, he has taught approximately 30 students who have continued on to graduate school, many in the area of plant breeding.

Placement

Numerous graduate programs have inquired about Aggie undergraduates from the Soil and Crop Science Department. In addition, private industry entities such as Monsanto, Syngenta, Bayer, and Dow Agro, UAP as well many smaller companies have contacted Dr. Hague about the availability of students. He has made 8 referrals so far to industry and from those, 5 are now employed.

Graduate Students

- **Jenny Clement**; Ph.D. Agronomy candidate; 2007- 2010 (projected); dissertation: “Genotypic Response of Cotton to Exogenous Applications of Auxins”.
- **Neha Kothari**; Ph.D. Plant Breeding candidate; 2008-2011 (projected); dissertation: “Inheritance and Evaluation of Cotton Fiber Maturity”.
 - Won 1st place in the graduate student presentation competition at the 2009 Cotton Beltwide Conference – Cotton Improvement Division.
- **Juliana Osorio-Marin**; Ph.D. Plant Breeding candidate; 2008-2011 (projected); dissertation: “Improvement of cotton fiber spinning quality through selection and inheritance of fiber elongation”.
- **Greg Berger**; M.S. Plant Breeding; 2007-2008; thesis: “Diallel analysis and heritability estimates of fiber traits for ELS, *Gossypium hirsutum*, L., progeny”; Now pursuing Ph.D. in plant breeding at Virginia Tech studying wheat.

Graduate Student Committee Involvement

Degree	Chair or Co-Chair	Member
Master of Science	1	2
Ph.D. 4		3

Funding for teaching

Butler Chair (\$105,000/3 years): funding provided through the Butler Chair by Dr. Norman Borlaug has provided 36 students with the opportunity to visit Mexico and learn about the international agriculture research efforts there. This funding covers the costs of transportation, lodging, meals, exhibit entrance fees, and various other expenses. It has also allowed Dr. Ron Cantrell to participate in the program.

CIMMYT (\$12,000/3 years): these funds were not directly paid to the program, but were realized discounts for lodging, transportation, and meals for students participating in SCSC 421 and SCSC621, International Agricultural Research in Mexico.

Cotton Inc. (\$160,000/3 years): these funds have been used to support 2 Ph.D. graduate students and their related projects. One of the students has been supported for 3 years at \$40,000/year and the other for 1 year at \$40,000.

Cotton Inc. (\$8,000 in 2009): this award was given to take 6 Texas A&M plant breeding graduate students and 2 Texas Tech University plant breeding graduate students to the USDA/INIFAP cotton nursery in Tecoman, Mexico.

Seminars

- A mock lecture was provided to approximately 50 prospective Aggie students from the Corpus Christi area in October 2008.
- A mock lecture was provided to approximately 50 prospective Aggie students from the Dallas area in November 2008.
- Seminar at the Region IX Education Service – Meeting of the Minds for secondary science educators in Wichita Falls, TX, May 2009. Seminar was titled “Agriculture and Civilization”

Student Recruitment

- Participated in Aggieland Saturday in 2007 and 2008. Provided laboratory cotton ginning equipment and was available to meet and answer questions from prospective students and their parents.
- In January 2009, Dr. Hague arranged for two Hispanic female students from the Soil and Crop Science Department, Ninfa Rodriguez, undergraduate student, and Arlene Pacheco, Ph.D. candidate, to visit five high schools in the north Texas area. The tour was called “Making a Difference in a Changing World.” During their tour, they met with high school students and told their personal stories of overcoming cultural obstacles to attend Texas A&M and major in agriculture. These particular schools were targeted because they had been identified as having female Hispanic students who were performing poorly in science areas. Administrators at these schools were all very pleased and hoped

that we could continue these types of contacts. Both students received stipends from the Region IX educational service.

- Met individually with three students from Gilmer, TX, in December 2007, about the opportunities in the Soil and Crop Science Department.
- Actively recruited two minority students from Bonham, TX, in the fall of 2006.
- Worked at the SCSC graduate recruitment booths at the American Society of Agronomy national meetings in 2006, 2007, and 2008. Had direct contact with more than 50 potential graduate students with 12 eventually coming to Texas A&M University.
- Responded to more than 100 inquiries about graduate studies at Texas A&M University since 2006.
- Met with 10 undergraduate students at Texas A&M Commerce about graduate school at Texas A&M University in November 2006.

V. Research

Program statement

Dr. Hague's current research program focuses on plant breeding improvement of cotton, jatropha, sunflowers, castor beans, rapeseed, and other oilseed crops. Cotton has been his primary crop of interest at Texas A&M University. He came to Texas A&M from Bayer CropScience where he was responsible for releasing several commercially successful cultivars that still dominate Texas production acreages. Breeding objectives in his Texas A&M program include cotton yield enhancement through improved water-use efficiency, fiber quality, and earlier maturing breeding lines. He is making a push to release and commercialize non-transgenic cotton cultivars in response to Texas growers' requests for alternatives to transgenic cultivars.

The newly formed oilseed projects target increased oilseed production for bio-diesel manufacture. Many of the crops, e.g. jatropha, castor beans, are not fully domesticated and need considerable plant habit improvement to become commercially viable. Other crops such as sunflowers and rapeseed are well-adapted to other areas of the United States, but breeding efforts in Texas have been limited. In general, fatty acid profiles high in oleic oil are most desirable for bio-diesel production. Because oleic fatty acids are usually depressed under high-temperature growing conditions, oilseed crops need to be planted in the Texas winter months, which necessitates better cold-tolerance among these crop species.

Accomplishments

- Sticky cotton – as a graduate student, he worked on determining the cause of sticky in the absence of honeydew producing insects such as aphids and whiteflies. Non-insect related

sticky cotton was becoming a great problem for Texas High Plains cotton producers. Dr. Hague discovered that the use of harvest aids substantially reduced the risk of sticky cotton and some cultivars were more susceptible to producing sticky cotton than others. Moreover, this propensity to produce sticky cotton was a heritable trait, but the use of harvest aids was a prudent approach to reduce the malady.

- Irrigation- Dr. Hague researched the economic and agronomic effectiveness of irrigating cotton and soybean on the alluvial soils of Northeast Louisiana. Yield responses occurred only during severe droughts in this region and severe droughts were not common enough to justify the expense of the capital outlay for irrigation in most production schemes.
- Plant nutrition in Northeast Louisiana - studies with cotton, corn, and soybean indicated that most nitrogen recommendations from the LSU extension service were higher than was needed for maximum yield. As a result growers were advised to reduce nitrogen application which saved them money and reduced groundwater pollution without sacrificing productivity.
- FiberMax cultivars - Released 16 commercial cultivars (FiberMax) which accounted for 36.99% market share in Texas and 17.68% share in the U.S. in 2008 according to the USDA-AMS. Ten other cultivars were within 1-2 years of being released at the time of his departure.
- Extra-long staple cotton germplasm – this was one of the first projects he collaborated with Dr. C. Wayne Smith, Texas A&M University. This material had a fiber length approximately 25% longer than the best current commercial cotton cultivars. With such fiber lengths, the spinning properties are greatly enhanced as well as marketing opportunities for textile mills and growers of ELS cultivars. Because of this potential, numerous projects and resources were devoted to promoting this type of germplasm within the Texas A&M cotton breeding programs. One of his graduate students, Greg Berger, discovered with his master's thesis project that alleles controlling the ELS trait were the result of some modifying genes, but had major quantitative trait loci associated with the unique fiber property. This has now led to the search for other alleles with additive effects on fiber length.
- Enhancing genetic diversity through mutation - in collaboration with Dr. C. Wayne Smith and Dr. Dick Auld, Texas Tech University, numerous mutated sister lines have been examined for unique agronomic and fiber qualities. One of his graduate students, Jenny Clement, has a group of lines with various high-volume instrumentation (HVI) measured fiber traits and made orthogonal contrasts with spinning data. As a result, the relationship between HVI data, which is the basis of how cotton quality is marketed from growers to textile mills, and actual spinning performances, will be determined.
- Exogenous auxin applications – Auxins are plant hormones that are thought to have a positive effect on fiber length and subsequent fiber quality. To date, research has shown the benefits of auxins in vitro and in molecular transformations; however, effects have not been demonstrated in a field setting where environmental conditions are not controlled. Initial trials, conducted by his graduate student, Jenny Clement, have shown no effect of exogenous applications and no genotype interaction.

- Fiber maturity – Fiber maturity affects how well cotton fibers uptake and maintain textile finishes such as dyes. In the HVI fiber measurement a crude estimation of fiber maturity is made as micronaire which is affected by fiber fineness as much maturity. Because of this interaction, determining alleles controlling fiber maturity is not well-understood and continues to frustrate cotton breeders. Neha Kothari, a Ph.D. graduate student advised by Dr. Hague, is investigating harvesting protocols that will control fiber maturity and allow independent elucidation of fiber fineness and maturity. In addition, she is designing segregating populations with a wide array of fiber maturities to determine inheritance behavior of this fiber quality.
- Sunflowers – This is one of the newest projects Dr. Hague has undertaken in response to the need for more bio-diesel stock sources. In 2009, he has grown a nursery with 65 breeding lines to determine the potential of each as parental material for Texas based cultivars. In addition, he has made important contacts with researchers at the USDA-ARS facility in Fargo, North Dakota. He has firm commitments from that team to collaborate in screening lines for headmoth resistance and heat tolerance. In addition, he has agronomic projects slated to begin in Feb. 2010 investigating planting dates and soil fertility recommendations for the Texas Blacklands. He will be collaborating with Dr. Curtis Jones, Texas A&M-Commerce, in these projects.
- Castor beans - This crop is generally 5X more valuable than other vegetable oils because of its unique oil qualities for industrial products. Currently the United States imports most of its castor oil from India, but this supply has become more tenuous in recent years. Texas had a large castor bean production industry from the 1940s until the mid-1970s when the price for most vegetable oils plunged. As a result, few breeding efforts have been made with the crop since then in the United States. Castor greatest deterrent is ricin, a highly toxic protein. Dr. Dick Auld has developed a cultivar with substantially less ricin and created other preliminary lines that look even better. Dr. Hague is collaborating with Auld to develop these lines for South Texas and improve the disease resistance. In 2009, he has evaluated 38 lines and found substantial differences for disease tolerance.
- Jatropha – this is a tropical oilseed native to Central America and grown mostly in India. There has been considerable hype surrounding this plant because of its perceived ability to produce vast amounts of oil on land not well-suited for food crops. It is drought tolerant, resistant to most plant diseases and insects, and requires little irrigation. In 2008, Dr. Hague made a series of crosses among lines grown by Dr. Paul Baumann in Weslaco, Texas. He has participated in a series of project proposals to private and federal programs for a full-scale breeding program that would further domesticate this crop and enhance the adaptability of it to less tropical growing regions.
- Germplasm collection – Dr. Hague has made five germplasm collection trips in the Rio Grand Valley to gather feral castor bean lines. He has obtained lines with enhanced disease resistance and a unique carpel morphology that may reduce shattering losses during mechanical harvest. He has obtained a landrace of okra that can be traced back to antebellum Georgia and reselected in North Texas since the 19th century. It is currently being increased and characterized. He has also secured a wild cotton line from the island of St. Croix. It appears to be a photoperiodic hirsutum and would be a unique addition to

the National Germplasm Collection. The National Germplasm collection is an underutilized resource. Dr. Hague has advocated through personal communication and tours with other cotton breeders about values of various forgotten or over-looked breeding lines. Material ascertained from east Africa seems to have the most immediate value to U.S. cotton breeding programs.

VI. Service

Agronomy Society of America

- Member since 2000.
- Attended national meetings in 2006, 2007, and 2008.
- Participated in Southern Branch meeting in 2009 and provided a presentation on drought tolerance in cotton.

Crop Science Society of America

- Member since 2000.
- Attended national meetings and business sessions in 2006, 2007, and 2008.
- Served as a moderator for presentations in 2007 and 2008.
- Presented research findings on drought tolerance improvement in cotton in 2008.

Texas Agronomy Society of America

- Elected board member in 2007.
- Elected as vice-president and program chair for the 2009 meeting in 2008.
- Elected as president in 2008.

International Cotton Genome Initiative

- Member since 2007.
- Served as secretary/treasurer in 2007.
- Attended meetings in Lubbock, TX, and the Cotton Beltwide Conferences in 2007.
- Attended meetings at the Plant and Animal Genome Conference in 2008.

- Attended the biannual meeting in Anyang, China, in 2008.
- Attended the meeting at the Plant and Animal Genome Conference in 2009.
- Responsible for taking minutes at meetings and dispersing money for organizational purposes.

Association for the Advancement of Industrial Crops

- Member since 2009.

Editor of the LSU Northeast Research Activities Bulletin, 2000, 2001

- Responsible for the compilation of research abstracts of projects conducted by scientists at the LSU AgCenter's NE Research Station in 2000 and 2001.

Editor of the LSU Conservation Tillage Activities 2001

- As part of the state participation in the Southern Regional Conservation Tillage Conference, he accumulated relevant work among LSU agronomist into a summary document for the conference attendees.

Washington County, Mississippi Delta Agricultural Research Station Consortium

- Member 2005-2006.

Louisiana Agronomy Association 2000-2002

- Member 2000-2002
- Board member 2001-2002

Associate editor, cotton breeding, for the Journal of Cotton Science 2009-present

- Assumed the role in April 2009. Responsible for finding reviewers for manuscripts related to cotton breeding and genetics.

SSCS farm services committee member 2006- present

- Responsible for providing faculty input into issues affecting operations at the TAMU farm in the Brazos River Bottom location.

SCSC scholarship committee 2008 and 2009

- Member of faculty panel that interviewed eligible SCSC undergraduate students for departmental scholarships. A total of 21 students were interviewed during this period.

USDA search committee for regional project leader for cotton and pecans

- Served as a committee member to provide recommendations as to who should be selected as the regional project leader for cotton and pecan research at the College Station, TX, location. April 2007.

Moderator for Cotton Beltwide Conference 2005, 2006, 2008

- Served as a moderator during the cotton improvement sessions.

Moderator for World Cotton Conference 2007

- Served as a moderator during the plant breeding session.

Moderator for International Irrigation Association Meeting 2002

- Served as a moderator during the agronomic irrigation research session.

Cotton Incorporated Cotton Breeder's Tour

- Served as logistical liaison for the tour. Provided touring stops and addressed specific needs of attendees.

VII. International

Program statement

Dr. Hague's international work has involved research and teaching activities. His objectives are to provide students with international learning experiences and provide them opportunities to network with international scientists and future scientists. He places a special emphasis on students understanding the human side of international research efforts. In addition, he attempts to relate that prosperity in other regions of the world promotes peace and well-being here in the United States. His international research efforts are aimed at exchanging ideas and develop collaborative relationships. He makes extensive use of international germplasm, hosts scientists from other countries, and actively pursues project funding for work in under developed nations.

Accomplishments

Teaching

Study abroad: Led three classes to Mexico. In all, 34 students have participated in the program. This includes 19 graduate students, 18 undergraduate students, 3 non-majors, 17 males, 17 females, 5 Asians, 2 African-Americans, 5 Hispanics, and 20 from economically disadvantaged homes. Moreover, 15 of these students had never traveled internationally and 3 had never left the state of Texas. Many of these students are now considering working internationally for the CGIAR system. One of the most common phrases from the students during the trip is "Oh, this is what they were talking about in class last semester!" The study abroad trip helps to tie-in the theoretical training from the classroom.

While in Mexico, the class visits extensively with CIMMYT scientists and capacity builders, INIFAP research scientists, and farmers of all levels from large-scale to subsistent. One of the highlights is a meeting with Dr. Pedro Brajich, the Director General of INIFAP. He emphasizes cultural activities so students gain an understanding of agriculture's contribution to society. The class visits the Teotihuacan Pyramids, the Templo Mayor, the ancient city of El Tajin, the Anthropology Museum in Mexico City, the Diego Rivera murals at the Federal Building and the Chapel of Chapingo, the Ballet Folclorico performed at the Palace de Artes, Taxco, as well as ample opportunities to shop at local vendors and try the local cuisine.

Graduate plant breeding students in Mexico: Eight graduate students, 6 from Texas A&M University and 2 from Texas Tech University, were taken to Mexico in the spring of 2009. During this 5-day excursion, students worked closely with USDA scientists who were characterizing part of the National Cotton Germplasm Collection grown in cooperation with INIFAP at Tecoman, Mexico. Students had the opportunity to see more than 20 species of cotton, most of which are never grown in the United States. They saw wild, pre-domesticated ancestors of upland cotton (*Gossypium hirsutum*, L.). Students also had the chance to closely interact with Dr. R.L. Nichols of Cotton Incorporated, Wes Malloy the USDA employee charged with the caretaking of the Tecoman site, and Dr. James Frelichowski, USDA-ARS, cotton

germplasm curator. Beyond cotton, students toured other germplasm nurseries and research projects that included coconuts, oranges, lemons, tamarindo, sugar cane, bananas, plantains, and mangoes. Because of the location of the research area, students traveled in a vehicle south from Guadalajara to the state of Colima. Along the way, students could see the unique topography of western Mexico which included volcanic activity, ancient salt flats, and tropical lowland agriculture.

Research

Mexico: teaching activities in Mexico provide the opportunity to glean research ideas from other programs. Considerable insight has been gained into improving drought tolerance in plants as well as breeding schemes to effectively integrate desirable alleles from wild breeding lines into advanced germplasm. In addition, he utilizes the winter nursery facilities at Tecoman, Mexico, to expedite cotton breeding with accelerated generation advancement.

China: In 2008, Dr. Hague participated in the International Cotton Genome Initiative biannual meeting in Anyang, China. He presented work with interspecific cotton breeding. He also toured Chinese cotton research facilities. Moreover, there was considerable interaction among researchers from Africa, Australia, and Europe.

World Cotton Conference: Although the 2007 meeting was held in Lubbock, TX, almost half the attendees were from other countries. This provided a chance to exchange thoughts with cotton researchers around the globe.

USAID project for cotton production in West Africa: A project team coordinated by the faculty at Virginia Tech University enabled him to not only meet faculty members of Virginia Tech, but also researchers who had worked extensively in West Africa. His pivotal role in the project was to develop cotton breeding strategies that would provide near-term and long-term assistance to West African cotton farmers. Although the proposal was ultimately rejected by USAID, the experience was enlightening.

Hosting international visitors: provided tours and briefly host visitors from China, Australia, Mexico, Uzbekistan, Kazakhstan, Brazil, Panama, Israel, India, and Pakistan.

International germplasm use: made extensive use of foreign cotton germplasm including lines from China, Mozambique, Bulgaria, Yugoslavia, Uganda, Australia, Mexico, Brazil, St. Croix, and Guatemala. These lines are used to not only enhance the genetic diversity among existing U.S. germplasm base, but also initiate development of germplasm for international markets.

VIII. Grants and Contracts Awarded

Type and Role	Texas A&M		LSU	
Total	Dollars to all PIs	Dollars allocated to your program	Total dollars to all PIs	Dollars allocated to your program
External Competitive				
PI	558,090	172,590	533,500	33,500
Co-PI	495,500	385,500	2,309,000	140,000
Total (PI + CO-PI)	1,053,590	558,090	2,842,500	173,500
Internal				
PI	105,000	105,000	-	-
Co-PI	-	-	-	-
Total (PI + CO-PI)	105,000	105,000	-	-
Other				
Gifts and Gifts-in-Kind	153,000	88,500	42,800	42,800

Internal funding

“Study Abroad Class to Mexico”; Butler Chair; 2007; \$35,000; role: designed the class; 100% share; non-competitive

“Study Abroad Class to Mexico”; Butler Chair; 2008; \$35,000; role: taught the class; 100% share; non-competitive.

“Study Abroad Class to Mexico”; Butler Chair; 2009; \$35,000; role: taught the class; 100% share; non-competitive.

External Funding (LSU AgCenter 2000-2002)

“Potassium requirements of commercial cotton cultivars”; Potassium and Phosphate Institute; 2001; \$18,000; 100% share; competitive.

“Soybean irrigation scheduling for alluvial soils”; Louisiana Soybean Board; 2002; \$7,500; 100% share; competitive.

“Cotton irrigation scheduling”; Cotton Incorporated State Support; 2002; \$5,000; 100% share; competitive.

“Comparison of a Picker and Stripper Harvester for Louisiana Cotton Production”; 2001; \$12,000; PI: R.L. Hutchinson; 25% share; competitive.

“Utilization of Satellite imagery for precision agriculture”; 2002-2004; NASA; \$2,800,000; irrigation role; PI: R.L. Leonard, Co-PI R. Bagwell; 5%; competitive.

“Cotton cultivar testing fees”; 2000-2002; Commercial seed industry; \$24,200; 100%; non-competitive.

“Soybean cultivar testing fees”; 2000-2002; Commercial seed industry; \$18,600; 100%; non-competitive.

External funding

“Development of quality enhanced and stress resistant upland cotton”; Texas Dept of Agriculture – Texas Food and Fiber Program; 2006-2007; \$187,000; PI: C.W. Smith; 50% share; competitive.

“Winter nursery expenses in Tecoman, Mexico”; Cotton Incorporated; 2007; \$1,800; 100% share; non-competitive.

“Development of quality enhanced and stress resistant upland cotton”; Texas Dept of Agriculture – Texas Food and Fiber Program; 2008-2009; \$187,000; PI: C.W. Smith; 50% share; competitive.

“Development of quality enhanced and stress resistant upland cotton”; Texas Dept of Agriculture – Texas Food and Fiber Program; 2010-2011; \$187,000; PI: C.W. Smith; 50% share; competitive.

“Study abroad discounts at CIMMYT”; CIMMYT; reduced costs for transportation and lodging for SCSC 421 and SCSC 621; 2007-2009; 100%; non-competitive.

“Improving Texas cotton - new alleles for improved yield stability and performance”; Cotton Incorporated core project; 2007; \$35,000. 100% share; competitive.

“Improving Texas cotton - new alleles for improved yield stability and performance”; Cotton Incorporated core project; 2008; \$35,000. 100% share; competitive.

“Breeding for improved fiber quality in Texas Cotton”; Cotton Incorporated State Support; 2007; \$100,000; PI: C.W. Smith, Co-PI D. Stelly; 35% share; competitive.

“Breeding for improved fiber quality in Texas Cotton”; Cotton Incorporated State Support; 2008; \$100,000; PI: C.W. Smith, Co-PI D. Stelly; 35% share; competitive.

“Breeding for improved fiber quality in Texas Cotton”; Cotton Incorporated State Support; 2009; \$100,000; PI: C.W. Smith, Co-PI D. Stelly; 35% share; competitive.

“Spinning evaluation of unique extra long staple fiber types of upland cotton”; Cotton Incorporated core project; 2008; \$20,000. 100% share; competitive.

“Winter nursery expenses in Tecoman, Mexico”; Cotton Incorporated; 2009; \$2,790; 100% share; non-competitive.

“Drought tolerance improvement for Texas cotton”; Cotton Incorporated core project; 2009; \$10,000. 100% share; competitive.

“Associating molecular markers with newly measurable fiber traits”; Cotton Incorporated core project; 2009; \$40,000. 100% share; competitive.

“Plant breeding graduate student training at the winter nursery in Tecoman, Mexico”; Cotton Incorporated core project; 2009; \$8,000. 100% share; competitive.

“Building sunflower production capabilities for Texas”; Texas Dept of Agriculture – Texas Food and Fiber Program; 2010-2011; \$40,000; Co-PI: C. Jones; 50% share; competitive.

“Cotton cultivar testing fees”; 2007-2009; Commercial seed industry; \$153,000; 50%; non-competitive.

IX. Publications and Professional Output

Publications and Scholarly Work

Type Texas	A&M	Career
Refereed/Peer-Reviewed	7 9	
Editor-reviewed	4 6	
Scientific abstracts	11 27	
Chapters in Books	2 2	
Research Agency Publ.	2	

Publication List

Refereed journal articles

Guidry, K.M., A. Bechtel, S. Hague, R. Hutchinson, and D. Boquet. 2001. Profitability of Cotton Crop Rotation Systems in Northeast Louisiana. Louisiana Ag. 44(3): 22-24.

Hague, S., A. Coco, D.J. Boquet. 2003. Irrigating cotton on alluvial soils in Louisiana. Louisiana Agriculture Magazine. 46 (2).

Hague, S., J.R. Gannaway, and R.K. Boman. 2008. Combining ability of upland cotton with traits associated with sticky fiber. Euphytica 164(1):75-79.

Smith, C.W., P.S. Thaxton, S. Hague, E. Hequet, and D. Jones. 2008. Registration of TAM01E-22 upland cotton germplasm line with improved fiber bundle strength. J. of Plant Registrations 2 (2): 129-131.

Smith, C.W., S. Hague, E. Hequet, P.S. Thaxton, and I.N. Brown. 2008. Development of Extra-Long Staple Upland Cotton. Crop Sci. 48: 1823-1831.

- Smith, C.W., S. Hague, P.S. Thaxton, E. Hequet, and D. Jones. 2008. Registration of Eight Extra-Long Staple Upland Cotton Germplasm Lines. *J. of Plant Registrations* :81-85.
- Boquet, D.J., B.S. Tubana, H.J. Mascagni, Jr., M. Holman, and S. Hague. 2009. *Agron J.* 101:400-407.
- Hague, S., C.W. Smith, G. Berger, P.S. Thaxton, and D. Jones. [accepted] Registration of TAM SIUP 98 and TAM SIUP 162 germplasm lines of cotton. *J. of Plant Registrations*.
- Hague, S. [accepted, E08-001u] Case study: transgenic crop controversy in Costa Rica. *J. of Natural Resources and Life Sciences Education*.

Book Chapters

- Hague, S. Frelichowski, and L. Hinze. 2009. ‘Cotton’ in *Oil Crop Breeding*. J. Vollman and I. Rajcan. (ed.). Springer Science Publishing, New York, N.Y. (In Press)
- Rathore, Keerti S. (Ganesan Sunilkumar, Roy G. Cantrell, Steve Hague, H. Keith Reding), Cotton, in Kole, C. and Hall, T. C. (eds.), “Compendium of Transgenic Crop Plants: Transgenic Sugar, Tuber and Fiber Crops”, Blackwell Publishing, Oxford, UK, 2008, pp 199-238.

Published Proceedings

- Hague, S., D. Reid and J.R. Gannaway. 1995. Earliness measurements for cotton produced in the North Texas Blacklands. *In Proceedings of the Beltwide Cotton Conferences*. Memphis, TN. 521.
- Hague, S. and J.R. Gannaway. 1996. Non-insect related sticky cotton. *In Proceedings of the Beltwide Cotton Conferences*. Memphis, TN. 1684-1685.
- Hague, S., R.L. Nichols, J.R. Gannaway and B. Wyatt. 1999. Harvest dates and treatments affect stickiness and sugars in West Texas cotton varieties. *In Proceedings of the Beltwide Cotton Conferences*. Memphis, TN. 540.
- Boquet, D.J., W.J. Thomas, H.J. Mascagni, A.B. Coco and S.S. Hague. 2001. Residual nitrogen effects in a cotton-corn rotation. *In Proceedings of the Beltwide Cotton Conferences*. Memphis, TN. 575-576.
- Hague, S., H. Mascagni, P. Bollich, M. Wolcott, and A. Stewart. 2002. Soil Fertility Research and Extension Activities in Louisiana. *Proceedings of Southern Soil Fertility Conference*. 90-95.

- Hague, S. R.L. Nichols, J.R. Gannaway and R.K. Boman. 2002. Relationship of plant sugars and environment to stickiness in West Texas cotton. *In* Proceedings of the Beltwide Cotton Conferences. Memphis, TN.
- Hague, S. and C. Overstreet. 2002. Crop rotation effects on nematode populations. Proceedings of the 25th Southern Conservation Tillage Conference. 156-160.
- Hague, S. 2002. Irrigation scheduling for cotton and soybean in Northeast Louisiana. *In* Proceedings of the 2002 International Irrigation Show and Technical Conference. New Orleans, LA.
- Hague, S. 2002. Strip intercropping cotton and soybean. *In* Proceedings of the 2002 Louisiana Agronomy Association Meeting. Baton Rouge, LA.
- Hague, S. 2002. Performance of Texas Originator Cottonseed cultivars in Northeast Louisiana. *In* Proceedings of the 2002 Louisiana Agronomy Association Meeting. Baton Rouge, LA.
- Hague, S. R.L. Hutchinson, A.B. Coco, and J. W. Branch, Jr. 2002. Irrigation schedules for alluvial soils in Louisiana. *In* Proceedings of the Beltwide Cotton Conferences. National Cotton Council, Memphis, TN.
- Howard, D., M. Kenty, J. Thomas, J.C. Banks, T. Blythe, N. Buehring, and S. Hague. 2002. Evaluation of two foliar N sources for cotton fertilization. *In* Proceedings of the Beltwide Cotton Conferences. National Cotton Council, Memphis, TN.
- Caldwell, W.D., J.A. Hayes, D.J. Boquet, and S. Hague. 2002. Cotton variety test results for Louisiana, 2001. *In* Proceedings of the Beltwide Cotton Conferences. National Cotton Council, Memphis, TN.
- Vories, E., J. Greene, S. Hague, B. Phipps, W. Robertson, and T. Teague. 2002. Determining the optimum timing for the final irrigation on Mid-South cotton. *In* Beltwide Cotton Conferences. National Cotton Council, Memphis, TN.
- Hague, S. 2004. FiberMax LibertyLink varieties: crop tolerance to glufosinate-ammonium. *In* Proceedings of the Beltwide Cotton Conferences. Memphis, TN. 2026.
- Hague, S. 2005. Fundamentals of FiberMax breeding: successfully combining high yield with preferred fiber quality. *In* Proceedings of the Beltwide Cotton Conferences. Memphis, TN. 1058.
- Hague, S., C.W. Smith, D.M. Stelly, C. Souder, and P. Thaxton. 2007. Combining Ability and Utility of Interspecific *Gossypium* Matings. *In* Proceedings of 4th World Cotton Conference, Lubbock, TX.
- Brown, N., W. Smith, J. Duncan, D. Auld, and S. Hague. 2007. Fiber quality traits following mutagenesis of TAM 94L-25. *In* Proceedings of 4th World Cotton Conference, Lubbock, TX.
- Kennett, R. C.W. Smith, S. Hague, P. Thaxton. 2007. The evaluation of high tannin cotton lines for resistance to *Rhizoctonia solani* and *Pythium aphanidermatum*. *In* Proceedings of 4th World Cotton Conference, Lubbock, TX.

- Smith, W. E. Hequet, S. Hague, P. Thaxton, and C. Souder. 2007. Development of extra-long staple upland. *In* Proceedings of 4th World Cotton Conference, Lubbock, TX.
- Hague, S., N. Brown, C.W. Smith, and J. Clement. 2008. Combining ability of extra-long staple cotton germplasm. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.
- Hague, S., C.W. Smith, and D. Stelly. 2008. Use of interspecific hybrids in the Texas A&M University Cotton Improvement Laboratory. *In* Proceedings of the International Cotton Genomics Initiative Research Conference, Anyang, China, July 8-11, 2008.
- Clement, J. C.W. Smith, and S. Hague. 2008. Performance of selected TAM 94L-25 mutated lines. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.
- Smith, C.W. and S. Hague. 2008. Extra-long staple upland cotton. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.
- Joy, K., C.W. Smith, S. Hague, E. Hequet, and E. Hughs. 2008. Evaluation of extra-long staple cotton cultivars. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.
- Berger, G., S. Hague, and C.W. Smith. 2008. Diallel analysis of improved fiber cotton germplasm with high quality fiber. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.
- Kennett, R., C.W. Smith, P.S. Thaxton, and S. Hague. 2008. High tannin cotton lines as a source of resistance to bacterial blight, *xanthomonas campestris* pv. *Malvacearum*. *In* Proceedings of Agronomy Society of America meeting. Houston, TX. Oct. 5-9, 2008.

Technical Bulletins

- Hendrix, D.L., R.L. Nichols, T.J. Henneberry, A.K. Murray, D.E. Brushwood, and S.S. Hague. 2007. Sources of stickiness from boll development, physiological sugars, and field contaminants. *In* Sticky Cotton: Causes, Effects, and Prevention. USDA-ARS Tech. Bulletin 1915.
- Hague, S. Potassium requirements of cotton cultivars. 2001. News and Views (PPI Newsletter).

Thesis/dissertation

- Hague, S. 1994. Measuring earliness in cotton. Undergraduate honors thesis. Texas A&M University-Commerce.
- Hague, S. 1997. Non-insect related sticky cotton. Master's thesis. Texas Tech University.

Hague, S. 2000. Plant sugars and sticky cotton. Ph.D. dissertation. Texas A&M University.

Technology Transfer

Patents

- Plant patent on cotton cultivar FiberMax FM 9063B2RF, 2006.
- Plant patent on cotton cultivar, FiberMax FM 9060F, 2006

Scientific and Professional Presentations

Type Invited		Volunteer or Submitted	Total
International	3 2 5		
National 3		24	27
Regional	0 6 6		
State 2		9	11
Local	11 15 26		

X. Professional Honors and Awards

“You Can’t Pick Better” – Bayer CropScience, July 2005, for outstanding service and achievement among the cotton group. Presented because of efforts to eliminate fraud and restoration of ethical behavior.

Award of Appreciation – Texas A&M Undergraduate Agronomy Club, April 2009, for advisement of club activities.

Item 13. Other materials: Course syllabi

SCSC 304 – Plant Breeding and Genetics

Time and Date

Tuesday and Thursday 8:00 – 9:15 AM; Heep Center Rm. 101

Instructor: Dr. Steve Hague
Office: Cotton Improvement Lab
Phone: 845-8248
Mobile: 255-1818
shague@tamu.edu

Prerequisite

AGRO 105 World Food and Fiber Crops

Course topics* / calendar

Week 1: Jan.20-22

- Chapters 1-3 (Sleper and Poehlman, 5th ed.)
- Review of course objectives, expectations, and procedures.
- Importance of plant breeding
- Flowers
- Mendelian Genetics

Week 2: Jan.27-29

- Mendelian Genetics
- Chromosomes, Mitosis, Meiosis
- Segregation, probability, and goodness of fit

Week 3: Feb. 3-5

- Gene chemistry
- Transcription
- Translation
- **Essay title and outline due**

Week 4: Feb.10-12

- Quantitative genetics
- Population genetics
- Chapter 4 (Sleper and Poehlman, 5th ed.)

Week 5: Feb.17-19

- **Exam I**
- Plant evolution

Week 6: Feb.24-26

- Tools of plant breeding
- Variation in chromosomes
- Mutation
- Chapter 5-7 (Sleper and Poehlman, 5th ed.)

Week 7: Mar.03-05

- Fertility regulation
- Biotechnology and plant breeding

- Tissue culture
- Chapter 8 (Sleper and Poehlman, 5th ed.)
- **1st essay draft due**

Week 8: Mar.10-12

- Transformation
- Molecular markers
- Chapter 8 (Sleper and Poehlman, 5th ed.)

Week 9: Mar.17-19

- Spring Break

Week 10: Mar.24-26

- Molecular markers (cont'd)
- **Exam II**

Week 11: Mar.31-Apr.02

- Breeding self-pollinated crops
- Chapter 9 (Sleper and Poehlman, 5th ed.)

Week 12: Apr.7-9

- Breeding cross-pollinated and clonally propagated crops
- Chapter 10 (Sleper and Poehlman, 5th ed.)
- **Final essay draft due**

Week 13: Apr.14-16

- Breeding hybrids
- Chapter 11 (Sleper and Poehlman, 5th ed.)

Week 14: Apr.21-23

- Quiz – 'Food, Inc.'
- Discussion – 'Food, Inc.'
- Screening techniques
- Experimental design and analysis

Week 15: Apr.28-30

- Germplasm resources
- Variety development and release
- Chapters 13 and 23 (Sleper and Poehlman, 5th ed.)

Final Exam: Monday-May 11, 2009 @ 1:00-3:00 P.M.

* I reserve the right to change topics on the calendar as the need arises, but will give students advance notice.

Grading

Assignment	% grade
Exam I	15
Exam II	15
Essay 20	
'Food, Inc.' Quiz	10
Final Exam (comprehensive)	20
Homework 20	

Final Grade for the Course

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F = < 60%

Exams

Exams will be multiple-choice, matching and short answer questions. There will be no make-up exams without a University excused absence. DO NOT MISS AN EXAM.

Essay

Essays will be doubled spaced, 1-inch margins, 10 to 12 point (Times New Roman) font. At least five sources should be cited. Four of these sources must be from referred journals. The Agronomy Society of America style should be used. Students are expected to write a minimum of 3-5 pages, not including works cited pages, tables and figures.

The topic of the essay will be improving a particular trait in a particular crop. Hence, the title should be "Improving _____ (trait) in _____ (crop)" (e.g. "Improving drought tolerance in bent grass"). You are expected to provide descriptions of actions taken by plant breeding teams to improve a particular trait in a crop.

Due dates and points

- The outline and title are due Feb. 3. (worth 10 points).
 - The outline should include a brief overview of the crop's history, current production, etc. The outline should also include at least three major efforts undertaken to improve the trait of interest. The strategies can be the same, but from different groups or the different strategies by the same group.
- The first draft is due by Mar. 5 (worth 20 points)
 - I will edit the first draft. In order to get all your points, it must follow the outline, have all references in place, and meet the length requirement.
- The final draft is due by April 09 (worth 70 points).

Grading will be based on meeting deadlines, grammar, conforming to ASA style, citations, and most importantly development of ideas. DO NOT PLAGARIZE. Cutting and pasting from an internet website is plagiarism. If you plagiarize, you are putting your academic career in jeopardy. If you are uncertain as to what plagiarism is, ask me. Plagiarism is cheating. Aggies do not cheat.

Homework

Homework assignments will be issued every two weeks. Assignments are designed to assist students with exams and to independently comprehend theories and practices of genetics and plant breeding. Assignments are due at the start of class on the due date. Late papers will not be accepted unless the student provides a university excused absence.

As part of each homework assignment, a report on a particular crop is due. Each report should include the scientific name of the crop, origin of the species, chromosomal information, breeding objectives, cross-pollination methods, selection methods and types of institutions with breeding programs for that crop. Most of the information for this report can be ascertained from the text book, but students are encouraged to source other material.

Date assigned	Due date	Topics from the lecture	Crop Report
Jan. 20	Feb. 03	Mendelian genetics; mitosis; meiosis	Wheat
Feb. 03	Feb. 17	Transcription; translation; quantitative genetics	Rice
Feb. 17	Mar. 03	Population genetics; chromosome variation; mutation; plant evolution	Soybean
Mar. 03	Mar. 24	Biotechnology; tissue culture; transformation; molecular markers	Corn
Mar. 24	Apr. 07	Breeding self-pollinated crops	Sorghum
Apr. 07	Apr. 21	Breeding cross-pollinated, clonally propagated, and hybrid crops	Cotton
Apr. 21	April 30	Experimental design and screening techniques; germplasm resources	Potato

‘Food, Inc.’

Students are expected to read this book and will be quizzed on the contents. Afterwards, there will be an open discussion of the issues raised in the book. Students are expected to participate in the discussion.

Attendance

Attendance will be in accordance to University policy. I will not call role, but it is in your best interest to attend every class.

Text Books

‘Breeding Field Crops’ by David Alan Sleper and John Milton Poehlman. 5th ed. 2006. pub. Ames (Blackwell Publishing Professional).

‘Food, Inc.’ by Peter Pringle. 2003. pub. Simon and Schuster.

Course Website

I have set-up a website for the class. The address is: <http://stevehague.tamu.edu/>. The password is “greengenes”. I will post lectures. I will usually post them ahead of time, but sometimes I make last minute changes. I will also post the homework assignments, handouts, and interesting reading assignments. I also have a Facebook page that students are welcome to access, but I am not very good with Facebook.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.

Aggie Honor Code:

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

For additional information concerning the Aggie Honor Code, please visit: www.tamu.edu/aggiehonor/

SCSC 421

Special Topic: International Agricultural Research Centers - Mexico

Course Objectives: Students will be introduced to international scientific research programs and develop an understanding of the challenges and opportunities in underdeveloped agriculture systems. Students also will be expected to provide critical evaluations in assessing the effectiveness of these research programs. An underlying theme to this course will be the role of agriculture in the creation and success of civilizations. In addition, students are expected to gain a greater awareness of the history and culture of Mexico.

Instructor:

Dr. Steve Hague
Cotton and Oilseed Breeder
Office (979) 845-8248
Mobile (979) 255-1818
e-mail: shague@tamu.edu

Prerequisites:

Permission of instructor and enrollment in good standing at Texas A&M University.

Course Topics / Calendar:

July 01 – Aug. 10, 2009

Location: College Station

Activity: travel development meetings will be held on flexible dates with students to insure they have all needed documentation in place and prepared for the trip (1 hour).

July 23 and Aug. 08, 2009

Location: College Station

Activity: Introductory presentations will be made on the CGIAR system of international agriculture research and CIMMYT as one of its premier international research centers. Travel information and expectations will be reviewed (3 hours).

Aug. 12-23, 2009

See the 'Mexico Itinerary'

Sept. 10, 2009

Location: College Station

Activity: Student meeting to discuss development of presentations and receive feedback on the program. Students will take a written exam at this meeting. (2 hours)

Sept. 01-Sept. 13, 2009

Location: College Station

Activity: Seminar preparation assistance. (1 hour, flexible dates)

Sept. 23 and 30, 2009

Location: College Station

Activity: Student presentation of reports and group discussion of CGIAR and CIMMYT (1 hour).

MEXICO ITINERARY

Date	Location	Activities		
		Morning	Afternoon	Evening
Aug. 12 Wednesday	CIMMYT	Travel to Houston	Fly to Mexico City	Free time; informal tour of CIMMYT
Aug. 13 Thursday	CIMMYT Field	Field experiment tours @CIMMYT	Maize research @CIMMYT	Free time
Aug. 14 Friday	Poza Rica	Travel to Agua Fria	Tropic maize program	Dinner in Poza Rica
Aug. 15 Saturday	CIMMYT	El Tajin	Local museums of culture and vanilla	Travel to El Batan
Aug. 16 Sunday	CIMMYT Pyramid	Pyramids of Teotihuacan	Free time	Free time
Aug. 17 Monday	CIMMYT	Wheat research	Germplasm bank / wheat research	Free time
Aug. 18 Tuesday	Taxco Toluca	Travel to Taxco station	Travel to Taxco	Dinner in Taxco
Aug. 19 Wednesday	CIMMYT Tzaltizapan	Tzaltizapan research station	Travel to Mexico City	Ballet Folklórico
Aug. 20 Thursday	CIMMYT	INIFAP HQ	CIMMYT Biotech labs	Free time
Aug. 21 Friday	Mexico City	CEVAMEX	Mexico City	Free time
Aug. 22 Saturday	Mexico City	Anthropology Museum	Zocalo Free	Free time
Aug. 23 Sunday	Home	Travel to College Station		

Tour Stops and Significance to the Course Objectives:

CIMMYT presentations

- **Bioinformatics** – use of statistical methods to improve research and disseminate data to scientists, consumers, industry, and governments.
- **Grain quality** – efforts to improve the nutritional quality of corn and wheat.
- **Corn breeding** – overview of methods and objectives in the global projects with special emphasis on germplasm conservation and abiotic stress tolerance.
- **Wheat breeding** – overview of methods and objectives in global projects to improve productivity and stability for low-input production systems.
- **Biotechnology** – tour of the laboratory and the latest genomic techniques associated with wheat and corn improvement.
- **Economics and capacity building** – social and economic justifications for agricultural enhancements in relation to improving the quality of life for people in developing countries, political implications of inaction, and cultural challenges of adopting new technologies.
- **Germplasm conservation** – tour of the germplasm seed storage. Students will see seed vaults that contain hundreds of thousands of unique germplasm lines of corn and wheat. They will also discuss the challenges of collecting and maintaining such a collection and its importance to plant breeders, farmers, consumers, and society.
- **Tour of the Tzaltizapan station** – mid-altitude research station that work with corn germplasm with greater heat tolerance and earlier maturity habits. Special projects to be reviewed will include drought tolerant cultivar development and tolerance to soil-iron deficiency.
- **Toluca station** – see the research station that Dr. Norman Borlaug was working at the day he was informed of winning the Noble Peace Prize. Meet the researchers and projects that are targeted

- towards improving the economic and environmental situation of the high-altitude farmers of Mexico, as well as farmers in other international high-elevation areas.
- **Subsistence farming tours** – meet with two different types of small-farmers. To the east of Mexico City, a group of farmers in a small village are producing a wide range of traditional crops using organic techniques. With this approach, they have eliminated synthetic pesticide use and still manage to feed approximately 800 people in the area. In the other tour, we will meet farmers trying to maintain agricultural operations in the middle of urban sprawl on farms that are less than 5 acres in size. You will see how technology transfer developed from agricultural research centers is working in their operations.

Taxco

- **City of Taxco**- this is listed as a World Heritage site. It is a colonial silver mining town that still has a hacienda once occupied by the conquistador, Hernan Cortes. It contains many other historical buildings and museums. Students will have the opportunity to explore the shops and artistry of this unique city. Much of the cuisine is prepared from locally grown produce with its own unique flavors.

Teotihuacán Pyramids

- **Pyramid of the Sun and Moon** – these pyramids are the center-pieces of one the largest pre-Columbian cities. Students will have the opportunity to climb the world's third largest pyramid and survey the surrounding area. They should gain an appreciation of how increases in food production allowed this civilization to dominate Mexico and other parts of Central America for centuries and the lasting effect it had upon later civilizations such as the Mayans and Aztecs.

Texcoco

- **Open-air markets** – students will have the opportunity to visit open-air markets where a wide variety of food is sold as well as many other products. A group meal of traditional Mexican food will be provided. Items on the menu will include grilled goat cheese, cactus, and meal worms.
- **University of Chapingo** –located near Texcoco, this agricultural university is open to all Mexican students, many of whom are granted full-scholarships. The university mission is to educate students with the latest techniques to enhance food production.
- **Chapel at Chapingo** – a short tour will allow students to see the famous Diego Rivera murals inside the chapel. Rivera was an ardent communist who depicted the historical inequities endured by the Mexican people.

Mexico City

- **INIFAP Headquarters** – a formal presentation by the Secretary General of INIFAP, Pedro Brajich, will introduce students to the diversity, opportunities and challenges facing the national agricultural program. The question and answer session will provide students the chance to ask about all aspects of Mexican agriculture with the nation's top agricultural government official.
- **Zocalo** – students will have the opportunity to visit the Great Catholic Church which was partially built atop the Templo Mayor of the Aztecs. The Templo Mayor has been excavated and allows visitors to see the remnants of the city that ruled Central America at the time of the Spanish Conquest. The Zocalo allows has the Federal buildings on two-sides. Inside, students can see several famous Diego Rivera murals that illustrate the unique and tragic history of Mexico. They will be able to enter the historical legislative chamber where events like the Texas rebellion were debated among representatives.
- **Anthropology Museum** – rated as one of the world's greatest. It is divided into sections that cover most of the major civilizations, past and present, of Mexico. Some of the largest exhibits focus on the Aztecs and Mayans. Students are expected to realize the connection between food stability and civilization success.
- **Ballet Folclorico** – this is the famous ballet choreographed to illustrate the passion and diversity of traditional rural Mexico.

Assignments:

- 1.) Pre-departure homework** – students will be given a short homework assignment designed to encourage independent thought and research into the cultural and historical aspects of the tour stops. Make-ups will be offered pending a university excused absence.
- 2.) Daily-logs** – students will be expected to write a daily log into a twitter account linked to the website of the Department of Soil and Crop Science. Students can make as many entries as they want, but at least one entry per day will be required from each student during the tour, except on the travel days to and from Mexico. Entries will be brief but should reference something interesting the student experienced on that particular day. Make-ups will be offered pending a university excused absence.
- 3.) Exam-** a short exam will be given during the post-tour meeting. Students will be expected to recall not only the people and places that were visited, but also the importance of each. Make-ups will be offered pending a university excused absence.
- 4.) Seminar** – short seminars will be presented to the faculty and students of the Department of Soil and Crop Sciences. The seminars will use power point slides to report on pre-assigned topics. Students are expected to allow the instructor to view the presentation at least a week ahead of their scheduled presentation. Make-ups will be offered pending a university excused absence.
- 5.) Participation** – attendance to all meetings. Students are expected to pay attention and represent Texas A&M in a positive manner. Failure to attend meetings will be excused if a university excused absence is provided.

Grading:

Homework –	15%
Daily logs -	20%
Exam- 15%	
Presentation-	20%
Participation-	30%

Grading Scale

90-100%	= A
80-89%	= B
70-79%	= C
60-69%	= D
less than 60%	= F

Americans with Disabilities Act (ADA) Policy:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.

Aggie Honor Code:

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

For additional information concerning the Aggie Honor Code, please visit: www.tamu.edu/aggiehonor/

AGRO 621

Special Topic: International Agricultural Research Centers

Course Objectives: Students will be introduced into an international scientific culture and develop an understanding of the challenges and opportunities in underdeveloped agriculture systems. Students also will be expected to provide critical evaluations in assessing the effectiveness of complex research programs.

Instructors:

Dr. Steve Hague
Cotton Breeder
Office (979) 845-8248
Mobile (979) 255-1818
e-mail: shague@tamu.edu

Prerequisites:

Enrollment in a graduate studies program at Texas A&M University.

Course Topics / Calendar:

July 01 – Aug. 10, 2009

Location: College Station

Activity: travel development meetings will be held on flexible dates with students to insure they have all needed documentation in place and prepared for the trip (1 hour).

July 23 and Aug. 08, 2009

Location: College Station

Activity: Introductory presentations will be made on the CGIAR system of international agriculture research and CIMMYT as one of its premier international research centers. Travel information and expectations will be reviewed (3 hours).

Aug. 12-23, 2009

Mexico itinerary

Sept. 10, 2009

Location: College Station

Activity: Student meeting to discuss development of presentations and receive feedback on the program. Students will take a written exam at this meeting. (2 hours)

Sept. 10-Oct. 01, 2009

Location: College Station

Activity: Seminar preparation assistance. (1 hour, flexible dates)

Sept. 16 and 23, 2009

Location: College Station

Activity: Student presentation of reports and group discussion of CGIAR and CIMMYT. Written report due at this time (1 hour).

MEXICO ITINERARY

Date	Location	Activities		
		Morning	Afternoon	Evening
Aug. 12 Wednesday	CIMMYT	Travel to Houston	Fly to Mexico City	Free time; informal tour of CIMMYT
Aug. 13 Thursday	CIMMYT Field	Field experiment tours @CIMMYT	Maize research @CIMMYT	Free time
Aug. 14 Friday	Poza Rica	Travel to Agua Fria	Tropic maize program	Dinner in Poza Rica
Aug. 15 Saturday	CIMMYT	El Tajin	Local museums of culture and vanilla	Travel to El Batan
Aug. 16 Sunday	CIMMYT Pyramid	Pyramids of Teotihuacan	Free time	Free time
Aug. 17 Monday	CIMMYT	Wheat research	Germplasm bank / wheat research	Free time
Aug. 18 Tuesday	Taxco Toluca	Travel to Taxco station	Travel to Taxco	Dinner in Taxco
Aug. 19 Wednesday	CIMMYT Tzaltizapan	Tzaltizapan research station	Travel to Mexico City	Ballet Folklorico
Aug. 20 Thursday	CIMMYT	INIFAP HQ	CIMMYT Biotech labs	Free time
Aug. 21 Friday	Mexico City	CEVAMEX	Mexico City	Free time
Aug. 22 Saturday	Mexico City	Anthropology Museum	Zocalo Free	Free time
Aug. 23 Sunday	Home	Travel to College Station		

Grading:

Exam	10%
Case Assessment	10%
Seminar	30%
Participation	50%

Assignments:

The exam will include topics experienced during the trip to Mexico. Test questions will be multiple choice and short answer. The exam for AGRO 689 will be more complex than for AGRO 489.

The case assessment, due at the end of the course, shall contain a brief overview of the research programs. It shall also include an evaluation of the strengths and weaknesses of

the centers' mission and effectiveness. Students will also provide suggestions for improving the program both from internal and external parties

The seminar will be expected Sept. 17 – 23, 2009. It will be a slide presentation on a topic that will be assigned after returning to College Station. The presentation will be in front of the faculty, staff, students and guests of the Soil and Crop Science Department. There are three seminar dates and students will be assigned a time slot. The seminar is scheduled for 1 hour but several students will present during this time period. The average length of each student's presentation should be about 10 minutes.

Participation will include student attendance and involvement in discussions and activities during the trip to Mexico and in the question-and-answer period following the seminar.

Mexico City: the capital city of Mexico and flush with cultural experiences. We will be staying in the downtown area in a hotel. Most activities in the city will be organized and we will stay in a completely intact group. There will be some time for students to explore in smaller groups.

Taxco: this is a small colonial-period silver mining town that has been declared a national historical monument. The main industry is silver jewelry. It is close to the CIMMYT mid-altitude corn breeding station at Tlatlizapatan. We will stay one night in Taxco and students are encouraged to explore this town. Aside from the silver artwork, there is the *Museo Guillermo Spratling* which is a history and archeology museum, the *Museo de Arte Virreinal*, which is a religious art museum, and the *Teleferico*, which is an aerial cable car.

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AGRO 689

Special Topic: Experimental Designs in Agriculture

Course Objectives: to teach students fundamental principles and procedures of experimental designs in agricultural sciences. Emphasis will include factorial designs, predicting outputs, covariance analysis, and procedures to analyze unbalanced experimental designs as they relate to common agricultural research projects. Students will become familiarized with computer programming of common statistical software.

Instructor:

Dr. Steve Hague

Cotton Breeder

Office (979) 845-8248

Mobile (979) 255-1818

e-mail: shague@tamu.edu

Room: Heep 224

Time: Tues & Thurs; 8:00-9:15 AM

Prerequisites: STAT 651

Course Topics:

- 1) Basic Concepts
 - a) fundamentals of agricultural research, methodology, and experimentation
 - b) simple computer software programs and applications will be introduced
- 2) Factorial Experimental Design
 - a) complete randomized design
 - b) randomized complete block design
 - c) Latin square design
 - d) split-plot and split-split plot designs
 - e) nested designs
 - f) variance analyses
 - g) interactions with years and locations

- i) comparisons of paired and grouped mean
- 3) Unbalanced Designs
 - a) estimation of missing values
 - b) the general linear model
 - c) planned incomplete block design
- 4) Predicting Outcomes
 - a) correlation
 - b) simple-linear regression
 - b) multiple-linear regression
- 5) Covariance analysis
 - a) complete randomized design
 - b) randomized complete block design
 - c) split-plot design

Grading:

Activity	% of Final Grade
Homework 50	
Exam I	15
Exam II	15
Final Exam	20

Assignments:*Homework*

Weekly homework problems will be assigned related to that week's lecture.

Exam I and II

Exams will be comprehensive in that understanding of earlier material is assumed on exams over later material.

Final Exam

The final exam will be comprehensive including all material presented during the course.

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From: [Bill Rooney](#)
To: ["David Baltensperger"](#); ["Stelly David"](#)
Subject: RE: Reference request for Dr. Steve Hague
Date: Thursday, August 27, 2009 10:05:00 AM
Attachments: [08-27-09 Baltensperger and Stelly.pdf](#)

David and David:

Attached is my written evaluation of Dr. Steve Hague's mid-term P and T package.

If you have questions, just let me know.

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: David Baltensperger [<mailto:DBaltensperger@ag.tamu.edu>]
Sent: Monday, August 17, 2009 4:39 PM
To: Bill L Rooney
Subject: RE: Reference request for Dr. Steve Hague

attached!

David D. Baltensperger
Professor and Head
Soil and Crop Sciences
Texas A&M University
2474 TAMU
College Station, Texas 77843-2474

Phone 979-845-3041
Fax 979-845-0456
Email dbaltensperger@ag.tamu.edu

>>> "Bill Rooney" <wlr@tamu.edu> 8/17/2009 3:53 PM >>>
David:

I can look at Hague's package. Have Judy send it to me.

Regards,

Bill

Dr. William L. Rooney

Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: David Baltensperger [<mailto:DBaltensperger@ag.tamu.edu>]
Sent: Monday, August 17, 2009 9:42 AM
To: Bill L Rooney
Subject: Reference request for Dr. Steve Hague

David D. Baltensperger
Professor and Head
Soil and Crop Sciences
Texas A&M University
2474 TAMU
College Station, Texas 77843-2474

Phone 979-845-3041
Fax 979-845-0456
Email dbaltensperger@ag.tamu.edu

August 27, 2009

Dr. David Stelly
Chair, Promotion and Tenure Committee
Department of Soil & Crop Sciences

Dr. David Baltensperger
Professor and Head
Department of Soil and Crop Sciences

David(s):

I have reviewed the mid-term achievement package of Dr. Steve Hague and I am happy to provide you with a written evaluation of the packet. I hope that I can provide useful insight to both the committee and the candidate to assist him in improving his achievement package for promotion in the coming years.

Dr. Hague has been on faculty at Texas A&M University since June 2006. Prior to this position, Dr. Hague held positions as a cotton breeder for Bayer CropScience in Leland, MS and a research agronomist for the LSU AgCenter in St. Joseph, LA. In his current position, his appointment is budgeted at 75% research, 25% teaching. I will divide my comments based on performance in each section.

In his first three years, Dr. Hague has been quite active in the development of academic courses and providing opportunities for students to engage in unique learning opportunities. In his three years, Dr. Hague has taught three different courses, and it now appears that he is settling into teaching two classes in our department. Agro304 is an important undergraduate introduction to plant breeding and genetics and from all indications, it seems that Dr. Hague has been well received by students taking this course. In addition, Steve has developed a study abroad course (offered at both the undergraduate and graduate level) that provides agronomy and plant breeding students an opportunity to observe and interact with agricultural research and production throughout Mexico. The study abroad course has been enhanced by the fact that Steve has obtained funds (~\$100K) to offset much of the cost associated with the course. This has allowed greater student enrollment and participation. Dr. Hague has also recruited and is advising graduate students in cotton breeding and genetics. To date, Steve has served as a chair (or co-chair) on 1 M.S. student (completed) and 3 Ph.D. students (currently active). I find this level of graduate advising right on schedule for a person in Steve's position and these students will be very important to meeting research goals within his program.

With regard to research, Dr. Hague was hired to develop a cotton breeding and genetics program. Based on the documentation provided, it appears that initial efforts in cotton improvement have been focused on fiber quality and maturity. While these are logical areas for research, they are quite similar to areas of research in which several other faculty have been active for many years. The challenge for Steve is to develop a clearly independent identity for his program. In that light, he has initiated cotton research in plant hormone application and methodologies to increase genetic variation in elite cotton germplasm. In

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addition, Steve has initiated research in oilseed crops for energy production. While in its infancy, this could develop into a significant program, contingent on the availability of additional funding.

Dr. Hague has authored or co-authored a total of nine journal manuscripts and Dr. Hague is the senior author on four of those manuscripts. I would encourage Steve to be more aggressive in writing over the next three years so that there is no question regarding productivity when his package is presented in three years. Ensuring that his graduate student conduct publishable research and aggressively writing and publish will be critical in this aspect.

In grant procurement, Dr. Hague has been successful at obtaining competitive funding (\$500,000) from Cotton Incorporated and TDA Food and Fiber program. This level of funding will certainly allow Steve to develop a program that is distinct within the TAMU system and that will have an impact on the cotton industry. This funding should also allow Steve to pursue additional, non-traditional sources to extend his program in the future. This is particularly important to the oilseed energy breeding, which has been prominently listed as important in his program, but to date, there is only one small grant (~\$20,000) supporting the program.

In summary, it is my opinion that Steve's efforts to develop a comprehensive research and teaching project are generally on schedule. I think he has exceeded expectations in his teaching responsibilities. In his research, I would strongly encourage him to emphasize publishing and funding. It is particularly important for him to identify realistic funding opportunities so that will allow him to develop a unique and important oilseed bioenergy program.

Regards,

A handwritten signature in black ink, appearing to read 'B. Rooney', with a stylized flourish at the end.

William L. Rooney
Professor
Sorghum Breeder and Geneticist
Chair, Plant Release Committee

From: [Russell Spitz](#)
To: [Rooney, Bill](#)
Subject: Re: Report
Date: Monday, November 02, 2009 9:49:20 AM
Attachments: [Report 11.2.09.pdf](#)

Attached please find the first four pages of the report we were discussing. Please see Table 1 with yields at tons/ac.

Russell Spitz
Vision Power Systems, Inc.
3733 Crown Point Road
Jacksonville, FL 32257
Phone: 904-288-6500 Ext. 116
Fax: 904-260-4515

This e-mail and any files transmitted with it from Vision Power Systems, Inc. are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this e-mail in error, please notify the sender.

Economic Feasibility of Ethanol Production from Sweet Sorghum Juice in Texas

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*Selected Paper prepared for presentation at the Southern Agricultural Economics
Association Annual Meetings, Atlanta, Georgia, January 31-February 3, 2009*

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Economic Feasibility of Ethanol Production from Sweet Sorghum Juice in Texas

Abstract

The economic feasibility of producing ethanol from sweet sorghum juice is projected using Monte Carlo simulation models to estimate the price ethanol plants will likely have to pay for sweet sorghum and the uncertain returns for ethanol plants. Ethanol plants in high yielding regions will likely generate returns on assets of 11%-12% and in low yield areas the returns on assets will be less than 10%.

Ethanol first gained popularity as an energy source in response to the oil embargos of the 1970's and the resulting oil and gasoline price increases. Government support fueled industry growth through the mid 1980's until oil and gasoline prices retreated, collapsing the market for ethanol. Much like then, increasing oil and gasoline prices, and the topic of energy security, were instrumental mechanisms in the revival of the ethanol industry over the last few years. As of January 2009, there are 172 ethanol plants in the U.S. with a combined capacity of over 10 billion gallons (Renewable Fuels Association 2009).

Corn is currently the feedstock of choice for U.S. ethanol producers. Increasing ethanol production led to higher domestic corn utilization, as it is also widely used in the food and livestock sectors. This, coupled with other factors such as the value of the dollar and investment markets, has contributed to corn prices rising to some of the highest levels in U.S. history. Farmers responded to high corn prices by shifting planted acres to corn, which has caused ripple effects across other crops, contributing to higher price levels of competing crops. As a result, public and political interest has escalated for the production of ethanol from sources other than corn.

Economic research has explored various alternative ethanol production technologies. Progress has been made with respect to biochemical and thermochemical technologies for cellulosic ethanol, yet the ability to reach commercial viability continues to elude the industry. Herbst (2003), Shapouri, Salassi, and Fairbanks (2006), Ribera et al. (2007a), Salassi (2007), and Outlaw et al. (2007) have examined the economic feasibility of ethanol production from grain sorghum and corn, sugar, sugarcane juice and molasses, sugar, and sugarcane juice, respectively. Studies by Epplin (1996), Graham, English, and Noon (2000), and Mapemba et al. (2007) have explored transportation, harvest, and delivered feedstock cost components of biomass used for cellulosic ethanol. Outlaw et al. (2007) conclude ethanol production from sugarcane juice, a predominant production method in Brazil, would be economically feasible in certain regions of the United States. However, sugar policy has left little opportunity for this method to gain traction in the United States.

Sweet sorghum, grown as an alternative to sugarcane, has been identified as a potential dedicated energy crop that can be grown as far north and south as latitude 45° (Rooney et al. 2007). During very dry periods, sweet sorghum can go into dormancy, with growth resuming when sufficient moisture levels return (Gnansounou, Dauriat, and Wyman 2005). Several varieties of sweet sorghum have been developed ranging in size, yield, and intended use. The Mississippi Agricultural and Forestry Experiment Station and the United States Department of Agriculture developed several sweet sorghum varieties (2008). The four varieties that were developed, Dale (1970), Theis (1974), M81-E (1981), and Topper 76-6 (1994), have different maturity lengths, seed weights, and juice and dry matter yields. Rooney et al. (1998; 2007), at Texas A&M University,

has developed and is testing hybrid sweet sorghums for biomass and energy production. Additionally, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is developing sorghum varieties specifically for ethanol production (2007).

Sweet sorghum is a variety of sorghum that has a high concentration of soluble sugars in the juice. Characteristics of high fermentable sugars, low fertilizer requirement, high water use efficiency (1/3 of sugarcane and 1/2 of corn), short growing period, and the ability to adapt well to diverse climate and soil conditions make sweet sorghum a potential feedstock for ethanol production (Wu et al. 2008). While single-cut yields may be low, an increased growing season increases cumulative yields due to the ratoon potential of the crop (Rooney et al. 2007). As shown in Table 1, this disparity is evident when comparing yields across climatic zones in Texas. See Figure 1 for a map showing the locations referenced in Table 1.

Table 1: Annual Average Sweet Sorghum Yields, Frost Free Days, Growing Days, and Yield Disparity Across Study Areas.

	Willacy	Wharton	Hill	Moore
Average Sweet Sorghum Yield (tons/ac)	137	47	33	24
Average Days without a Freeze				
Minimum	232	205	192	129
Mean	303	243	225	171
Maximum	365	293	286	194
Average Growing Days Between Harvests				
Between Planting and First Cut	105	107	123	135
Between First Cut and Second Cut	60	77	90	90
Between Second Cut and Third Cut	60	77	90	90
Average Yield Disparity Between Harvests				
Second Cut Fraction of First Cut	0.7	0.7	0.7	0.7
Third Cut Fraction of First Cut	0.5	0.5	0.5	0.5

Research has suggested sweet sorghum juice as a potential feedstock for ethanol production (Gibbons et al. 1986; Venturi and Venturi 2003; ICRISAT 2007; Prasad et al.

From: [Bill Rooney](#)
To: ["Holland, L. Diane"](#); ["Baltensperger, David"](#); ["McCutchen, Bill"](#); ["DeLuca, Warren"](#)
Cc: ["Lawson, Caroline"](#); ["Hurley, Janie C."](#)
Subject: RE: REQUEST FOR APPROVAL
Date: Thursday, October 08, 2009 2:05:42 AM

Diane et al.,

I approve of this agreement.

Regards,

Bill

From: Holland, L. Diane [mailto:DHolland@tamu.edu]
Sent: Wednesday, October 07, 2009 2:51 PM
To: Bill Rooney; Baltensperger, David; McCutchen, Bill; DeLuca, Warren
Cc: Lawson, Caroline; Hurley, Janie C.
Subject: REQUEST FOR APPROVAL
Importance: High

Good Afternoon,

Attached for your consideration and approval is a draft of a proposed License Agreement with Ceres, Inc. for TAMUS 2713. Also attached is a Brief summarizing the terms of this Amendment and an Approval form. If the Agreement is acceptable as written, please indicate your approval with an email response copying everyone on this email. In the interest of time, we are doing this routing approval via email. I look forward to hearing back from you soon.

Diane Holland
Office of Technology Commercialization
Texas A&M University Systems
800 Raymond Stotzer Parkway, Ste. 2020
3369 TAMU
College Station, TX 77843-3369
979-845-8966 - phone
979-845-1402 - fax

From: [Avant, Bob](#)
To: [Bridges, Brenda](#); [Cassandra McDonough](#); [Lloyd Rooney](#); [Bill Rooney](#); [Helms, Adam](#); [shay-simpson@tamu.edu](#); [McCutchen, Bill](#); [Nancy Turner](#)
Cc: [bmccutchen@tamu.edu](#)
Subject: RE: revised final sorghum onepager
Date: Sunday, September 06, 2009 3:53:07 PM
Attachments: [Sorghum_Superhealthfood_rva.pdf](#)

Brenda,

This is a good start. We make the case for the great value of sorghum as a health food. But we don't say what we propose to do with all of this knowledge and capability. It needs a good wrap up paragraph that lays this out.

Bob Avant
Program Director
Texas AgriLife Research
979/845-2908
512/422-6171 (Cell)
bavant@tamu.edu
<http://agbioenergy.tamu.edu>

From: Bridges, Brenda
Sent: Thursday, September 03, 2009 4:37 PM
To: Cassandra McDonough; Lloyd Rooney; Bill Rooney; Helms, Adam; Avant, Bob; shay-simpson@tamu.edu; McCutchen, Bill; Nancy Turner
Subject: revised final sorghum onepager

Attached.

Brenda Bridges
Program Associate
Texas AgriLife Research Corporate Relations
College Station TX 77843-2583
O: (979)862-7136
C: (979)324-7823
Fax (979)458-2155
<http://agbioenergy.tamu.edu>

Go green! Please consider the environment before printing this.

Sorghum Functionality as a Superhealthfood

Texas AgriLife Research scientists include internationally recognized sorghum specialists and innovators who are developing sorghum hybrids that provide high levels of different active components that can be patent protected as a plant variety.

Inflammation and Cancer

- High levels of flavanones and flavones are found in sorghums, which make them an excellent source of rare anti-inflammatory compounds.
- Sorghum can be processed to concentrate the phenols effectively by abrasive milling procedures like those used in rice polishing. This results in a four- to five-fold increase in tannins and antioxidants, depending on the sorghum variety.
- The condensed tannins provide anticancer activities, particularly for colon cancer but also for breast cancer, as measured by in vivo and in vitro tests in several laboratories around the world.
- Black sorghums are the only known common source of *unique* 3-deoxyanthocyanins, which induce strong chemoprotective and anti-inflammatory responses in human cell lines.

Gluten Intolerance

- Sorghum is a popular food choice among those with celiac disease, as an inexpensive healthy ingredient for a wide variety of foods enjoyed by gluten-intolerant people. Flavors vary from bland (white sorghums) to a strong whole-grain flavor (pigmented sorghums).
- Sorghum flour and bran provide needed fiber and protein to bread and cake mixes used by celiacs and produce a bread product superior to traditional 100% tuber-based starch mixes.

Food Production

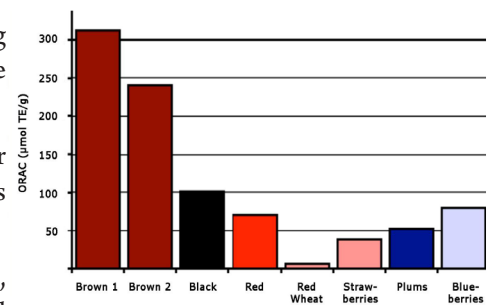
- Sorghum can be produced easily, stored, and processed into a wide array of extracts and milled fractions to enhance antioxidants in food systems ranging from granola bars to extruded ready-to-eat-breakfast-cereals to snacks, making them superhealthfoods.
- Obese and overweight subjects may benefit from the ability of unique sorghums to influence carbohydrate and protein digestion.

For more information, contact

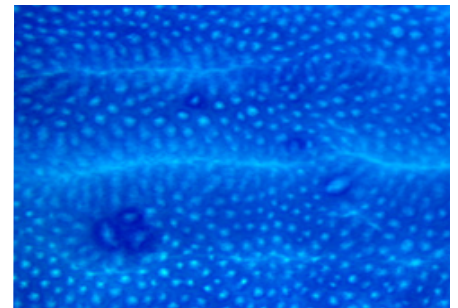
Bob Avant, Corporate Relations Director
Texas AgriLife Research
100 Centeq Bldg. A | 1500 Research Parkway
College Station TX 77843-2583
Ph: 979.845.2908 | E-mail: bavant@tamu.edu



Different kinds of sorghum



Antioxidant levels in sorghum and wheat bran compared to fruits



Aberrant crypt foci in the colon



Gluten-free sorghum bread

From: [Lloyd Rooney](#)
To: [Adam Helms](#); [Cassandra McDonough](#); [Bob Avant](#); [Brenda Bridges](#); [Nancy D Turner](#); [Shay Simpson](#); [Bill L Rooney](#)
Cc: [Bill McCutchen](#)
Subject: RE: revised final sorghum onepager
Date: Monday, September 07, 2009 7:48:32 AM
Attachments: [AGpalate97lwr.doc](#)

Attached is a revision of the information for the Harris. Your suggestions, revisions etc are welcome.
Lloyd

>>> "Avant, Bob" <bavant@tamu.edu> 9/6/2009 3:52 PM >>>
Brenda,

This is a good start. We make the case for the great value of sorghum as a health food. But we don't say what we propose to do with all of this knowledge and capability. It needs a good wrap up paragraph that lays this out.

Bob Avant
Program Director
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979/845-2908
512/422-6171 (Cell)
bavant@tamu.edu
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From: Bridges, Brenda
Sent: Thursday, September 03, 2009 4:37 PM
To: Cassandra McDonough; Lloyd Rooney; Bill Rooney; Helms, Adam; Avant, Bob; shay-simpson@tamu.edu; McCutchen, Bill; Nancy Turner
Subject: revised final sorghum onepager

Attached.

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Program Associate
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College Station TX 77843-2583
O: (979)862-7136
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<http://agbioenergy.tamu.edu>

Go green! Please consider the environment before printing this.

From: [Avant, Bob](#)
To: [Steve Searcy](#); [Mullet, John E.](#); [Bill L Rooney](#); [James Richardson](#); stelly@tamu.edu
Cc: bmccutchen@tamu.edu; shay-simpson@tamu.edu
Subject: RE: revised Objective 3 text and budget
Date: Monday, September 07, 2009 9:36:26 PM
Attachments: [Goal 1 Searcy and Richardson Combined.doc](#)

I combined Steve's and Jame's Goal 1; please make sure I didn't do you any harm. Bill Rooney, please work off this copy for your changes.

Bob Avant
Program Director
Texas AgriLife Research
979/845-2908
512/422-6171 (Cell)
bavant@tamu.edu
<http://agbioenergy.tamu.edu>

From: Steve Searcy [mailto:s-searcy@tamu.edu]
Sent: Monday, September 07, 2009 5:07 PM
To: Avant, Bob; Mullet, John E.; Bill L Rooney
Subject: revised Objective 3 text and budget

Bob et al.

Attached is my revised text for objective 3 based on discussion this afternoon. There were too many tracked changes, so I accepted them all and generated a new version. Look at the items related to objective 3, including the deliverable and objective 3 text.

Regarding budget, I have run some estimates for what I anticipate the work would require based on testing in three distinct locations.

Year 1 - \$250,000
Year 2 - \$600,000
Year 3 - \$750,000
Year 4 - \$750,000
Year 5 - \$750,000

These numbers are large, but getting the equipment in place for demonstrations in three different locations will be expensive, as much of the equipment is likely not available from local custom harvesters. Year 2 is especially a problem as we were talking \$1MM total for Goal 1. If you tell me what is allowable from the budget standpoint, I will cut back the scope of the activity. If it is \$250k for year 2, that means probably one evaluation location. Unfortunately, that will be after the end of the Edwards DOE project, so we could not piggy back on that as one site. I will be a team player on this, but I wanted to let you know what my initial estimates are.

Steve

Stephen W. Searcy, P.E.
Professor and Associate Head
2117 TAMU
Biological and Agricultural Engineering
Texas A&M University / Texas AgriLife Research
College Station, TX 77843

Email: s-searcy@tamu.edu
Office phone: 979-845-3668
Fax: 979-862-3442

Improving Life Through Science and Technology.

From: [Tim Trop](#)
To: [Bill Rooney](#); [David Hackett](#)
Cc: [REDACTED]
Subject: RE: Rocks on Maui
Date: Friday, October 09, 2009 4:07:16 PM

Bill

It is cane but here are the differences:

1. The cane is only harvested once every two years, while we would need to harvest at least twice a year:
2. They don't collect the stover while we do.
3. They burn the cane in place while we would not
4. Because of item one above we would use center pivot irrigation while they use disposable poly they burn in the field when they harvest
5. The rocks continually rise up through soil

We can probably deal with the rocks by using a different crop on worst fields but we need to id fields where sorghum may not be practical. The big concern right now is the birds.

Tim

From: Bill Rooney [mailto:wlr@tamu.edu]
Sent: Friday, October 09, 2009 4:01 PM
To: 'David Hackett'
Cc: [REDACTED] Tim Trop
Subject: RE: Rocks on Maui

The residue on the field appears to be cane. Is that correct? If so, how do they deal with rocks on sugarcane. The situation will be no worse with sorghum than it is with sugarcane.

There will likely need to be some modification of planter units, ie, sweep to remove rocks from the planting area. Also, you may not be able to harvest as low as normal. I'd also have to understand the Hawaiiin concern to understand if it is a legitimate problem.

Regards,

Bill

From: David Hackett [REDACTED]
Sent: Friday, October 09, 2009 11:12 AM
To: wlr@tamu.edu
Cc: [REDACTED]
Subject: Rocks on Maui

Hi Bill,

Tim Trop asked me to send you these cell phone pictures I took on Maui on Monday. This is a

recently plowed field. I took the pictures to illustrate the size and distribution of the rocks in a field that Lee Jakeway, HC&S' manager, had selected to represent a problem field from a rock perspective.

Best regards,

Dave Hackett

From: [Bill Rooney](#)
To: ["David Hackett"](#)
Cc: [REDACTED]; [REDACTED]
Subject: RE: Rocks on Maui
Date: Friday, October 09, 2009 4:00:40 PM

The residue on the field appears to be cane. Is that correct? If so, how do they deal with rocks on sugarcane. The situation will be no worse with sorghum than it is with sugarcane.

There will likely need to be some modification of planter units, ie, sweep to remove rocks from the planting area. Also, you may not be able to harvest as low as normal. I'd also have to understand the Hawaiin concern to understand if it is a legitimate problem.

Regards,

Bill

From: David Hackett [REDACTED]
Sent: Friday, October 09, 2009 11:12 AM
To: wlr@tamu.edu
Cc: [REDACTED]; [REDACTED]
Subject: Rocks on Maui

Hi Bill,

Tim Trop asked me to send you these cell phone pictures I took on Maui on Monday. This is a recently plowed field. I took the pictures to illustrate the size and distribution of the rocks in a field that Lee Jakeway, HC&S' manager, had selected to represent a problem field from a rock perspective.

Best regards,

Dave Hackett

HC&S harvests the cane by burning the stands first, after which they move in with bulldozers and rakes to push and rake the cane in piles or windrows. The next step is to pick up the cane with grapples and load it in trucks. The method is called "push-piling" and is only practiced in Hawaii. It is a wasteful method that results in dirty cane as delivered at the mill, and does not allow for ratoon crops. The justification is that with the high winds in Hawaii, the cane stands are not straight enough to use conventional cane harvesters. It also rips out the drip irrigation tubing. Because it is so wasteful, they harvest cane only after two years, which makes for really dense stands and increases yields. My guess is that the sandy lowlands will require no special treatment in order to take them into grain sorghum and that on a good portion of the higher slopes, we can rake, windrow and crush rock, to enable drilling seeds, cultivation and harvesting with conventional methods.

--- On Fri, 10/9/09, Bill Rooney <wlr@tamu.edu> wrote:

> From: Bill Rooney <wlr@tamu.edu>

> Subject: RE: Rocks on Maui

> To: "'David Hackett'" [REDACTED]

> Cc: [REDACTED]

> Date: Friday, October 9, 2009, 4:00 PM

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> From: David Hackett

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> Sent: Friday, October 09, 2009 11:12 AM

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> To: wlr@tamu.edu

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> Cc

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> Subject: Rocks on Maui

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> Best regards,

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> Dave Hackett

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From: [Bill Rooney](#)
To: ["Lavery, Cara"](#)
Subject: RE: ROONEY: Please Approve 1-Pager
Date: Friday, October 09, 2009 11:06:27 AM

Cara:

That looks fine. I'll have a quarterly to you early next week.

Regards,

Bill

From: Lavery, Cara [mailto:cara.lavery@okstate.edu]
Sent: Thursday, October 08, 2009 8:41 AM
To: Bill Rooney
Subject: ROONEY: Please Approve 1-Pager

Good afternoon,

The US-DOT and Sun Grant National Office asked me to create "One Pagers" for each awarded project within the South Central region. As such, please review the attached PDF document. If there is anything you would like to see removed, added, or changed, please let me know.

If I don't hear from you by Friday, I will assume everything is okay and you approve it.

Thank you for taking the time to do this.

Cara

Cara Lavery

Specialist, Sun Grant Initiative

Oklahoma State University
Division of Agriculture Sciences & Natural Resources
214a Agricultural Hall
Stillwater, OK 78078-6016
Phone: (405) 744-3255
Fax: (405) 744-6059
E-Mail: cara.lavery@okstate.edu
Website: <http://sungrant.okstate.edu>

From: [Gary C. Peterson](#)
To: [David Baltensperger](#); [Jaroy Moore](#); [Steve Brown](#); [Bill McCutchen](#)
Cc: [Janie C. Hurley](#); [Peter L. Schuerman](#); [Bill A. Dugas](#); [Bill L. Rooney](#)
Subject: RE: Rosenow Release Observation
Date: Thursday, October 08, 2009 9:57:21 AM
Attachments: [IMAGE.bmp](#)

Bill,

There are older releases, introductions from other countries, and a few converted lines that should be freely available. The first group of lines, Tx3301-3360, was released but a release announcement never distributed (that I am aware of). Most of the lines have not been released and an MTA should be required per existing policy. The first column (Status) gives information as to whether the lines have been released or origin, etc. The second column (Recommendation) lists whether an MTA should be required based on my understanding of current release policy.

If additional information is need let me know.

Regards,

Gary



Gary C. Peterson
Professor
Texas AgriLife Research & Extension Center
1102 E. FM 1294
Lubbock, TX 79403
g-peterson1@tamu.edu or gpeterso@ag.tamu.edu
tel: 806-746-4019
fax: 806-746-6528

>>> "McCutchen, Bill" <bmccutchen@tamu.edu> 10/7/2009 7:36 AM >>>

Gary,

Can I assume that these are parental lines from the Rosenow nursery which are publicly available? If so, then we certainly keep them publicly available, but with all other material we should require an MTA, per our existing System policy. I am going to forward this list to Janie and OTC so that they have a record as well.

Thanks for the heads up.

Bill

--

Bill F. McCutchen, Ph.D.
Associate Director

Texas AgriLife Research
Texas A&M University System
113 Jack K. Williams Administration Building
2142 TAMU College Station, TX 77843-2142
979-845-8488 Tel
979-458-4765 Fax
bmccutchen@tamu.edu

From: Gary C Peterson [<mailto:g-peterson1@tamu.edu>]
Sent: Monday, October 05, 2009 10:44 AM
To: Baltensperger, David; Jaroy Moore; Steve Brown; McCutchen, Bill
Cc: Bill L Rooney
Subject: Rosenow Release Observation

Bill,

A list of breeding lines (see attached) from the Rosenow breeding program was distributed to many sorghum scientists in August. The breeding lines represent the range of germplasm in that program. Individuals evaluating the lines at either College Station or Lubbock were told the material would be available with an MTA.

I have classified the lines for status - released, unreleased, etc - and whether an MTA is appropriate. Bill Rooney has looked at the list and the status/recommendation.

If there are any questions please call.

Regards,

Gary

Gary C. Peterson
Professor
Texas AgriLife Research & Extension Center
1102 E. FM 1294
Lubbock, TX 79403
g-peterson1@tamu.edu or gpeterso@ag.tamu.edu
tel: 806-746-4019
fax: 806-746-6528

From: [REDACTED] n behalf of [Russell Jessup](#)
To: [McCutchen Bill](#)
Cc: [Baltensperger David](#); [Schuerman Peter L.](#); [Schmitt Brian C.](#); wlr@tamu.edu; [Avant Bob](#)
Subject: RE: Russell Jessup
Date: Thursday, October 08, 2009 10:49:58 PM

Peter,

Towards enabling maximum progress at next Monday's meeting, I would like to frame my inquiry beforehand. Broadly, I would like to discuss encumbrances and FTO in perennial grass crops my program could deploy for biofuels, turfgrass, forage, etc. markets. Specifically:

Having the CERES/Chevron/etc. agreements available Monday or earlier would aid my understanding of our commitments immensely. If any further preliminary discussion would be beneficial please feel free to contact me.

Many thanks,

Russ

=====

Russell Jessup
Assistant Professor
Perennial Grass Breeder
Dept. of Soil & Crop Sci.
Texas A&M University
rjessup@tamu.edu
979-315-4242

-----Original Message-----

From: j-slovacek@tamu.edu
Sent: Tue, 29 Sep 2009 07:44:29 -0500
To: bmccutchen@tamu.edu, kzak@tamu.edu, rjessup@tamu.edu
Subject: RE: Russell Jessup

Meeting has been set for Monday, October 12th at 1:30 pm in suite 113 Jack K Williams Admin Building conference room.

Thanks all for responding! Have a great day!

Jackie

Jackie Slovacek

Assistant to the Associate Director

Texas AgriLife Research

113 Jack K Williams Administration Bldg

College Station, Texas 77843-2142

979.845.7980

979.458.4765 Fax

From: Slovacek, Jackie

Sent: Monday, September 28, 2009 4:03 PM

To: McCutchen, Bill; Zak, Kendra; 'Russell Jessup'

Cc: Baltensperger, David; Schuerman, Peter L.; Schmitt, Brian C.; 'wlr@tamu.edu'; Avant, Bob; Judy Young

Subject: RE: Russell Jessup

Importance: High

Dear Drs. Baltensperger, Rooney and Jessup:

The following dates are available for McCutchen, Schuerman, Avant and Schmitt:

Oct 5th at 3:00 pm

Oct 6th at 3:30 pm

Oct 12th from 1:30 pm until 5:00 pm

Oct 13th from 8-10 am and 1:30 – 5:00 pm

Please let me know if any of these dates work with your schedules and I will be happy to set up this meeting.

Thanks

Jackie

Jackie Slovacek

Assistant to the Associate Director

Texas **AgriLife Research**

113 Jack K Williams Administration Bldg

College Station, Texas 77843-2142

979.845.7980

979.458.4765 Fax

-----Original Message-----

From: McCutchen, Bill

Sent: Monday, September 28, 2009 3:36 PM

To: Slovacek, Jackie; Zak, Kendra

Cc: Baltensperger, David; Schuerman, Peter L.; Schmitt, Brian C.;

'wlr@tamu.edu'; Avant, Bob

Subject: Russell Jessup

Jackie and Kendra,

Can you please arrange for a meeting (in the next couple of weeks with this entire cc:d group) with Dr. Jessup to discuss his RD program and FTO questions?

Also, please forward to Dr. Jessup as I don't have his email on BB.

Thanks,

Bill

From: [Hurley, Janie C.](#)
To: [Ken Davenport](#)
Cc: [Bill Rooney](#); [Brummett, Robert G.](#); [REDACTED]
Subject: RE: Seed Request for Chromatin
Date: Friday, October 16, 2009 11:20:02 AM

Hi Ken,

It is good to hear from you. We will get to work on this from our end. Our first step is for us to discuss further with the researchers to clarify the background of each of these materials to ensure that we are clear to transfer them. We understand that there is some urgency, so we will do what we can on our end to expedite.

Thank you!

Janie

Janie C. Hurley, MBA
Sr. Licensing Manager

Office of Technology Commercialization
The Texas A&M University System
3369 TAMU
College Station, TX 77843-3369
Ph: 979-845-6337
Fx: 979-845-1402
<http://otc.tamu.edu>

From: Ken Davenport [REDACTED]
Sent: Thursday, October 15, 2009 4:59 PM
To: Hurley, Janie C.
Cc: Nelson, Michelle; Avant, Bob; [REDACTED] Greg Zinkl; [REDACTED]
Subject: FW: Seed Request for Chromatin

Hello Janie,

Subsequent to our visit to Texas A&M last month to meet with Bill Rooney, you and your AgriLife colleagues, Larry has made a determination on behalf of Chromatin as to specific sorghum germplasm we would like to access. You will note the e-mail message he sent to Messrs. Lyles and Rooney earlier today.

I am writing to request that the appropriate Material Transfer Agreement be sent to me with copy to our corporate counsel, Greg Zinkl, with whom you have been in contact regarding the Mutual Non-Disclosure Agreement. I am assuming that there will be an access fee and that any commercial terms would be conveyed for our consideration were Chromatin to advance any or all of the germplasm it receives.

Since we intend to increase and evaluate this material in our winter nursery, time is somewhat of the essence. If you have any questions, please give me a call. I will be in the Chicago office tomorrow morning, but then heading for O'Hare to return home to Dallas for the weekend.

Best regards,

Ken

Kenneth G. Davenport, Ph. D.
Strategic Development
Chromatin Inc.
3440 S. Dearborn St., Suite 280
Chicago, IL 60616

+1.312.235.3619 (O)
+1.312.235.3611 (F)
+1.214.215.2984 (M)

From: Larry Lambright [REDACTED]
Sent: Thu 10/15/2009 3:37 PM
To: [REDACTED]; wlr@tamu.edu
Cc: Ken Davenport
Subject: Seed Request for Chromatin

Bill & Bill,

Based on the sweet sorghum and forage sorghum data you supplied as well as my visit to your trial site at Halfway, I would like to request the following inbreds for Chromatin:

Sweet Sorghums

Forage Sorghums

When documents are in order and you are ready to dispatch the seed, please send this

request to the following address:

Chromatin, Inc.

Rt.1, Box 63-2

951 FM 2301

Lockney, TX. 79241

Thanks in advance for your help.

Best regards,

Larry

Larry Lambright

Lambright Consulting, LLC

5423 80th Street

Lubbock, TX 79424

806.773.1328



From: [Bill Rooney](#)
To: ["Rebecca Corn"](#)
Subject: RE: seminar slides
Date: Saturday, October 10, 2009 11:11:08 PM

Rebecca:

This is a pretty good set of slides. The only thing that I saw missing (and it isn't really missing) is details on the different testing/analysis you did for the different objectives. I don't think you need more slides, but you need to remember (some way) to mention that in your presentation.

Regards,

Bill

From: Rebecca Corn [mailto:rcorn@neo.tamu.edu]
Sent: Tuesday, October 06, 2009 2:10 PM
To: 'Bill Rooney'
Subject: seminar slides

Dr. Rooney,

I'm attaching my slides for my defense seminar.

Rebecca

From: [Stelly David](#)
To: [Bill Rooney](#)
Cc: [Stelly David David M.](#); [Mullet John](#)
Subject: Re: sorcane space plants
Date: Sunday, September 20, 2009 9:18:51 AM

Agreed -- we should sample. I think that it would be strategically short-sighted to over select just yet.

Selecting 7-10 equates to roughly 2-3%, given a planting of 400 (how many plants actually survived?). These were transplants (Right????) and there is a very good chance that the correspondence is very low between transplant performance and clonal performance. I suggest a much greater percentage be maintained vegetatively and replanted next year, i.e. that we not relegate our interest to just 2-3 %. Once we better comprehend the relationships between transplant and clonal performance, we can exercise selection more effectively at the transplant level. Right? (This is like potato breeding.)

David

On Sep 20, 2009, at 8:51 AM, Bill Rooney wrote:

- > I've been through the nursery and scored everything and as you would
- > expect,
- > there is a lot more poor performers than there are good performers.
- > However, it is important to remember that this is a perennial crop
- > and that
- > performance is based on multiple years and not a single year.
- >
- > I've asked Matt and George to walk the nursery and score the
- > material as
- > well. We'll be getting together tomorrow to identify a common set
- > of the
- > best material for greenhouse work this fall/winter. It'll probably
- > be about
- > 7-10 genotypes. I would recommend that if you do some genomic
- > analysis that
- > these be included.
- >
- > It'll be pretty easy to pick a set of poor performers, but that
- > should be
- > done sooner than later if you want them, because I'm pretty sure
- > they won't
- > survive the winter. In addition, there are some plants that Matt
- > and I have
- > found that carry sorghum phenotypic traits (brace roots, smooth,
- > broader
- > leaves) and a couple of unique plants (really don't look like either
- > parent); these might ought to be candidates as well.
- >
- > With all that being said, we only have a single data point on this
- > material.
- > Therefore, I'm not convinced, given limited phenotypic data, and quite
- > complex genomes that any significant inferences could be made. I
- > agree
- > with David, it would certainly be nice to confirm genome composition

> and
> differences among plants, using the "reps" as good and bad types.

>
> Regards,
> Bill

>
> Dr. William L. Rooney
> Professor, Sorghum Breeding and Genetics
> Chair, Plant Release Committee
> Texas A&M University
> College Station, Texas 77843-2474
> 979 845 2151

>
>
> -----Original Message-----

> From: Stelly_David [<mailto:stelly@tamu.edu>]
> Sent: Saturday, September 19, 2009 1:56 PM
> To: John Mullet
> Cc: Stelly_David; Bill Rooney
> Subject: Re: sorcane space plants

>
>
> This is impossible to predict without doing it, of course. I worry
> that both the "goods" and "bads" are very complex populations, and
> that we will have not have sufficient phenotypic resolution within
> either group to associate performance variations with genomic
> variations. However, I would say yes, depending on cost and resources
> to explore. Have there been comparable efforts that would provide
> inference on what we might expect to find? It would be interesting at
> least to compare sorcanes collectively and individually to the cane
> parent to see what is being transmitted and what is not, then see if
> the patterns differ collectively between groups? I would anticipate
> that certain gene combinations, or lack thereof, are epistatically
> dominating the phenotypes; the complexities of those combinations will
> in some cases make detection relatively difficult from a statistical
> standpoint.

>
> David

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>
>
> On Sep 19, 2009, at 11:49 AM, John Mullet wrote:

>
>> Bill and David,

>>
>> As you know, there is a large range of growth phenotypes among you
>> sorcane space plants. Some look very good, others weak, yellowing,
>> non vertical, etc.

>>
>> I am thinking it would be worth while to extract DNA from some
>> 'good' WHs and a range of the others to see if we can tell these
>> types apart via whole genome genotyping. Might tell you something
>> about what is required to produce good WH, and possibly be useful in
>> screening out non useful types at some point in the process (or
>> which sources of pollen produce better WHs).

>>
>> Let me know if you think this is worth following up and we can work
>> out the logistics of leaf/DNA collection on a test set (maybe 12-24
>> good; 12-24 others).

>>

>> Thanks,
>>
>> John
>
>

From: [John Mullet](#)
To: [Bill Rooney](#)
Cc: ["Stelly David"](#)
Subject: Re: sorcane space plants
Date: Sunday, September 20, 2009 9:05:03 AM

Bill and David,

Sounds good. Clearly things will be complex, so I am thinking about this as a first stage test to explore how useful genotyping might be in future studies. I was also thinking about using 'good' vs. poor bulks to see if any general trends can be seen. The differential penetrance of sorghum traits is also interesting to understand.

If you are advancing 7-10 of the best, is it all right if I collect tissue from ~10 'poor' sorcanes or do you want one of your students to do this?

Thanks,

John

On Sep 20, 2009, at 8:51 AM, Bill Rooney wrote:

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> Regards,
> Bill

>

> Dr. William L. Rooney
> Professor, Sorghum Breeding and Genetics
> Chair, Plant Release Committee
> Texas A&M University
> College Station, Texas 77843-2474
> 979 845 2151

>

>

> -----Original Message-----

> From: Stelly_David [<mailto:stelly@tamu.edu>]
> Sent: Saturday, September 19, 2009 1:56 PM
> To: John Mullet
> Cc: Stelly_David; Bill Rooney
> Subject: Re: sorcane space plants

>

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```
>>  
>> Thanks,  
>>  
>> John  
>  
>
```

From: [Stelly David](#)
To: [John Mullet](#)
Cc: [Stelly David](#); [Bill Rooney](#)
Subject: Re: sorcane space plants
Date: Saturday, September 19, 2009 1:56:26 PM

This is impossible to predict without doing it, of course. I worry that both the "goods" and "bads" are very complex populations, and that we will have not have sufficient phenotypic resolution within either group to associate performance variations with genomic variations. However, I would say yes, depending on cost and resources to explore. Have there been comparable efforts that would provide inference on what we might expect to find? It would be interesting at least to compare sorcanes collectively and individually to the cane parent to see what is being transmitted and what is not, then see if the patterns differ collectively between groups? I would anticipate that certain gene combinations, or lack thereof, are epistatically dominating the phenotypes; the complexities of those combinations will in some cases make detection relatively difficult from a statistical standpoint.

David

On Sep 19, 2009, at 11:49 AM, John Mullet wrote:

> Bill and David,
>
> As you know, there is a large range of growth phenotypes among you
> sorcane space plants. Some look very good, others weak, yellowing,
> non vertical, etc.
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> I am thinking it would be worth while to extract DNA from some
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> John

From: [John Mullet](#)
To: [Stelly David](#)
Cc: [Bill Rooney](#)
Subject: Re: sorcane space plants
Date: Sunday, September 20, 2009 9:26:21 AM

Makes sense to me for the longer term study. A comparison of 7-10 good vs. poor WH is enough to see if the genotyping can add value.

John

On Sep 20, 2009, at 9:20 AM, Stelly_David wrote:

> Please see last email ... we need to decide on selection and sample
> accordingly, because we will want to relate DNA to performance of
> clones. Maybe sample and freeze-dry tissue of everything, as that
> is easy and leave us options for everything?

>

> David

>

>

> On Sep 20, 2009, at 9:04 AM, John Mullet wrote:

>

>> Bill and David,

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>> Sounds good. Clearly things will be complex, so I am thinking
>> about this as a first stage test to explore how useful genotyping
>> might be in future studies. I was also thinking about using 'good'
>> vs. poor bulks to see if any general trends can be seen. The
>> differential penetrance of sorghum traits is also interesting to
>> understand.

>>

>> If you are advancing 7-10 of the best, is it all right if I collect
>> tissue from ~10 'poor' sorcanes or do you want one of your students
>> to do this?

>>

>> Thanks,

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>> John

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>>

>> On Sep 20, 2009, at 8:51 AM, Bill Rooney wrote:

>>

>>> I've been through the nursery and scored everything and as you
>>> would expect,
>>> there is a lot more poor performers than there are good performers.
>>> However, it is important to remember that this is a perennial crop
>>> and that
>>> performance is based on multiple years and not a single year.

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>>> I've asked Matt and George to walk the nursery and score the
>>> material as

>>> well. We'll be getting together tomorrow to identify a common set
>>> of the

>>> best material for greenhouse work this fall/winter. It'll

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>>> It'll be pretty easy to pick a set of poor performers, but that
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>>> broader
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>>> parent); these might ought to be candidates as well.
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>>> material.
>>> Therefore, I'm not convinced, given limited phenotypic data, and
>>> quite
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>>> composition and
>>> differences among plants, using the "reps" as good and bad types.
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>>> Regards,
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>>>
>>> Dr. William L. Rooney
>>> Professor, Sorghum Breeding and Genetics
>>> Chair, Plant Release Committee
>>> Texas A&M University
>>> College Station, Texas 77843-2474
>>> 979 845 2151
>>>
>>>
>>> -----Original Message-----
>>> From: Stelly_David [<mailto:stelly@tamu.edu>]
>>> Sent: Saturday, September 19, 2009 1:56 PM
>>> To: John Mullet
>>> Cc: Stelly_David; Bill Rooney
>>> Subject: Re: sorcane space plants
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From: [Stelly David](#)
To: [John Mullet](#)
Cc: [Stelly David](#); [Bill Rooney](#)
Subject: Re: sorcane space plants
Date: Sunday, September 20, 2009 9:20:52 AM

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>

From: [Timothy Swaller](#)
To: [Bill Rooney](#); [Jeff Gwyn](#); [Edgar Haro](#)
Cc: [REDACTED]
Subject: RE: Sorghum Illumina Data
Date: Monday, September 21, 2009 11:56:39 AM

Thanks Bill.

Any information you can provide would be appreciated (when it is available)

Tim

From: Bill Rooney [mailto:wlr@tamu.edu]
Sent: Thursday, September 17, 2009 4:45 AM
To: Jeff Gwyn; Timothy Swaller; Edgar Haro
Cc: [REDACTED]
Subject: RE: Sorghum Illumina Data

Jeff and Tim:

We've evalauted MOST, but not all of these, in hybrid combinations. The data is embedded in the dissertation of Dan Packer and he is finishing his data collection this fall. Once we have some compiled, we'll try to get that subset we have.

regards,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Jeff Gwyn [REDACTED]
Sent: Tuesday, September 15, 2009 4:18 PM
To: Timothy Swaller; Edgar Haro; Bill Rooney
Subject: RE: Sorghum Illumina Data

Between Bill and Edgar, I would think they would have hybrid data with most if not all of these lines, maybe as only one side of the cross.

From: Timothy Swaller
Sent: Tuesday, September 15, 2009 3:31 PM
To: Jeff Gwyn; Edgar Haro
Subject: FW: Sorghum Illumina Data

Hi guys.

We have several tens of thousands of SNPs on some of these genotypes that TAMU has run through their NGS workflow. Ideally we would have some hybrid phenotypic data that we can look through that used at least 1 of these lines as a parent.

These are early days, but the more data we can look at (even if it is not a formal project) would help us to formulate ideas about how to analyze and process these types of datasets.

Thanks

Tim